Cider Apples™
NEW ZEALAND

ROADMAP FOR
Premium Cider Industry in New Zealand

CIDER APPLES NEW ZEALAND LTD (CANZ)

Authored by: Allan White | CANZ
John Powell | CANZ
Peter MacIntyre | Turamoe Trust
Carmen Gray | Fruit Wine & Cider Makers Association of NZ

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Summary

This ‘Roadmap’ report investigates how a new premium cider industry could be developed in New Zealand. The goal is to produce unique New Zealand ciders with a taste that excites consumers around the world, emulating the success of other unique New Zealand beverages or beverage ingredients such as Sauvignon Blanc and craft beer using New Zealand hops. It is based on developing new high producing cider apple cultivars with distinctive levels of tannins, polyphenols and sugars and better pest and disease resistance. It is not aimed at the existing business of making cider from reject fresh apples, or from often, lower producing more pest and disease prone traditional cider apples.

This report covers:

- The potential profitability of a premium cider industry for those along the value chain
- Market research of potential key export markets and trends within those markets
- Opportunities for further development and commercialisation of new cider apple cultivars
- The regulatory issues that could affect this programme, and
- Stakeholder discussions with interested cideries and landowners, including Māori/iwi groups, about customer needs, cultivars, and production of premium cider apples.

Estimated Profitability of Premium Cider Apples

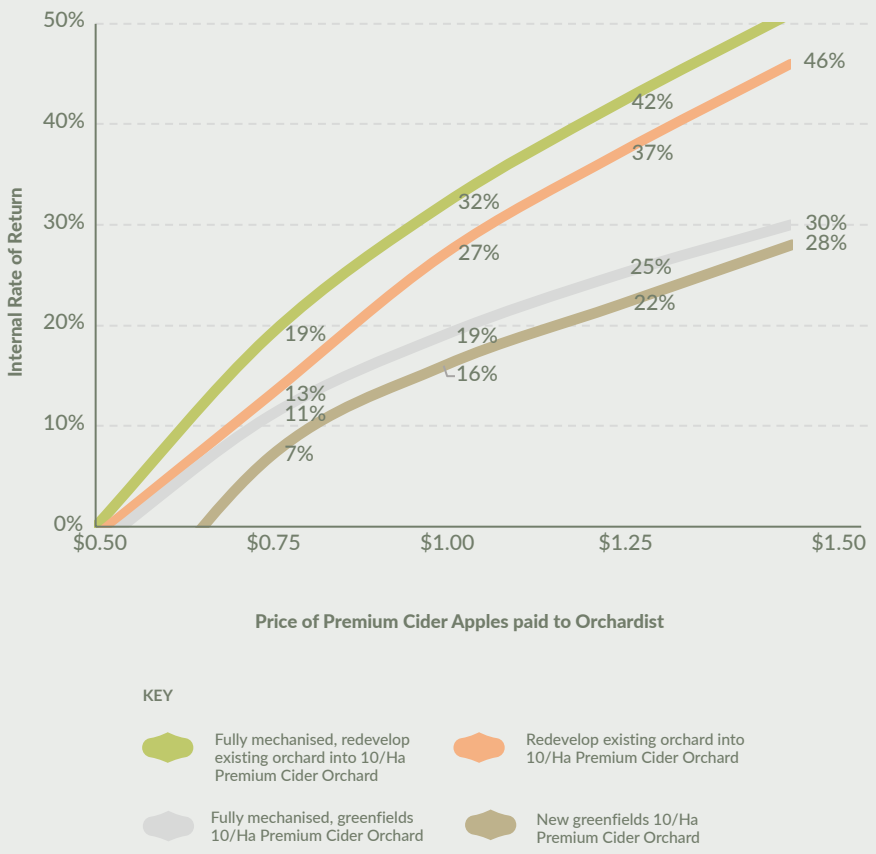
Our analysis of the potential earnings from premium cider orchards and cider making indicate that both could be very profitable. For this to happen, the orchardist would need to earn $1/kg or more for cider apples, and the cidery, with a million litre/year capacity, would need to earn revenue of $8/litre or more. With a distribution and retail margin of 50%, the implied retail price is at least $12 per litre. This is about $1/litre more than current New Zealand supermarket prices for cheaper cider made from apple concentrate.

In New Zealand, and offshore, consumers are prepared to pay more than $NZ12/litre for premium and craft ciders. Premium or craft ciders in New Zealand are priced online at 10% to 50% more. This is consistent with the premium for craft ciders in the UK market where craft ciders have a premium of 40% above standard ciders. In both the UK and US markets growth in craft cider sales has been strong, driven by demand from younger, wealthier and more educated consumer segments.

Estimated cider orchard profitability

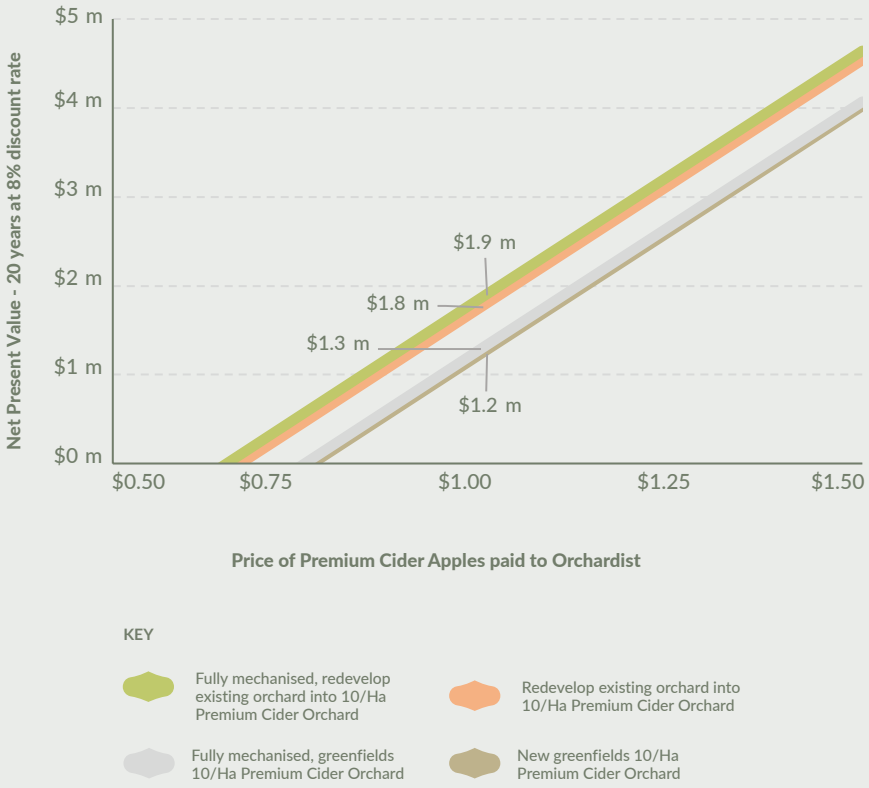
As shown in Figure 1 opposite, a greenfields orchard could expect to earn an internal rate of return (IRR) of 16% if it was paid $1/kg for its apples. However, it would be possible to achieve much better results from redevelopment of an existing orchard (brownfields). In a brownfields scenario upfront costs are lower, and the IRR improves to 27%. Adding the savings that should be possible from mechanisation further improves both the greenfield and brownfield orchard development scenarios. The greenfield could expect to earn an IRR of 19% and a brownfield redevelopment 32%.

Figure 1: Estimated Premium Cider Orchard IRR vs Apple Price



As is shown in Figure 2 below, a greenfields orchard could be valued at $1.2 million (a net present value (NPV) at a discount rate of 8% over 20 years on estimated pre-tax cash flows). A brownfields scenario improves the NPV to $1.8 million. Consistent with their IRRs, adding savings from mechanisation improves both the greenfield and brownfield scenarios. The greenfield could expect to achieve a NPV of $1.3 million while the brownfield NPV could rise to $1.9 million

Figure 2: Estimated Premium Orchard Business Value vs Cider Apple Sale Price.



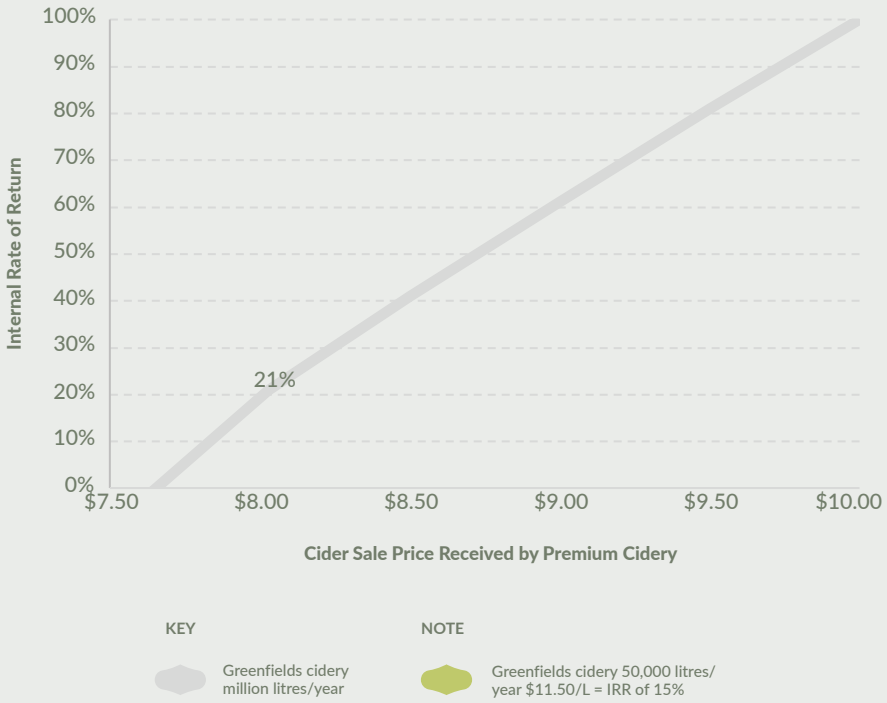
At the $1/kg orchard gate price, the analysis suggests that cider apples could be a lucrative investment for orchardists. At this price, the forecast net cash operating surplus per year runs at between $39,000/hectare and $49,000/hectare depending on whether the investment is greenfields or brownfields and is mechanized. This compares to the Ministry for Primary Industries pipfruit orchard model that calculates an average Hawke's Bay fresh apple orchard cash operating surplus of $8,514/planted hectare in 2021 and operating losses in 2022 and forecast for 2023. Our analysis was based on more detailed work on the likely economics of cider orchards by the horticultural consultancy, Fruition.

Currently, $1/kg is a top-end price for the best quality specialty cider apples. As is common in the UK, there would need to be a contract in place, with a price around this level or better and a term that adequately compensated the orchardist for the risk of their investment in premium cider apple cultivars. For cider makers to pay $1/kg, they would need to earn a cider door price that would cover this fruit cost and make a reasonable return from exporting or domestic distributors and retailers.

Estimated premium cidery profitability

Figure 3 shows that a million litre capacity greenfields cidery could achieve an IRR of 21% assuming it earned $8/litre either exporting or on the domestic market. This assumes the cidery is paying a $1/kg for its specialty cider apples which should support a healthy return for the orchardist as discussed above. It also assumes the higher excise tax rate of $2.84/litre based on a 6.5% ABV cider. A more boutique greenfields cidery producing 50,000 litres a year would needto earn at a much higher level i.e., $11.50/litre to achieve an IRR of 15% (again assuming it is paying $1/kg for its cider apples).

Figure 3: Estimated Premium Cidery IRR vs Cider Sale Price

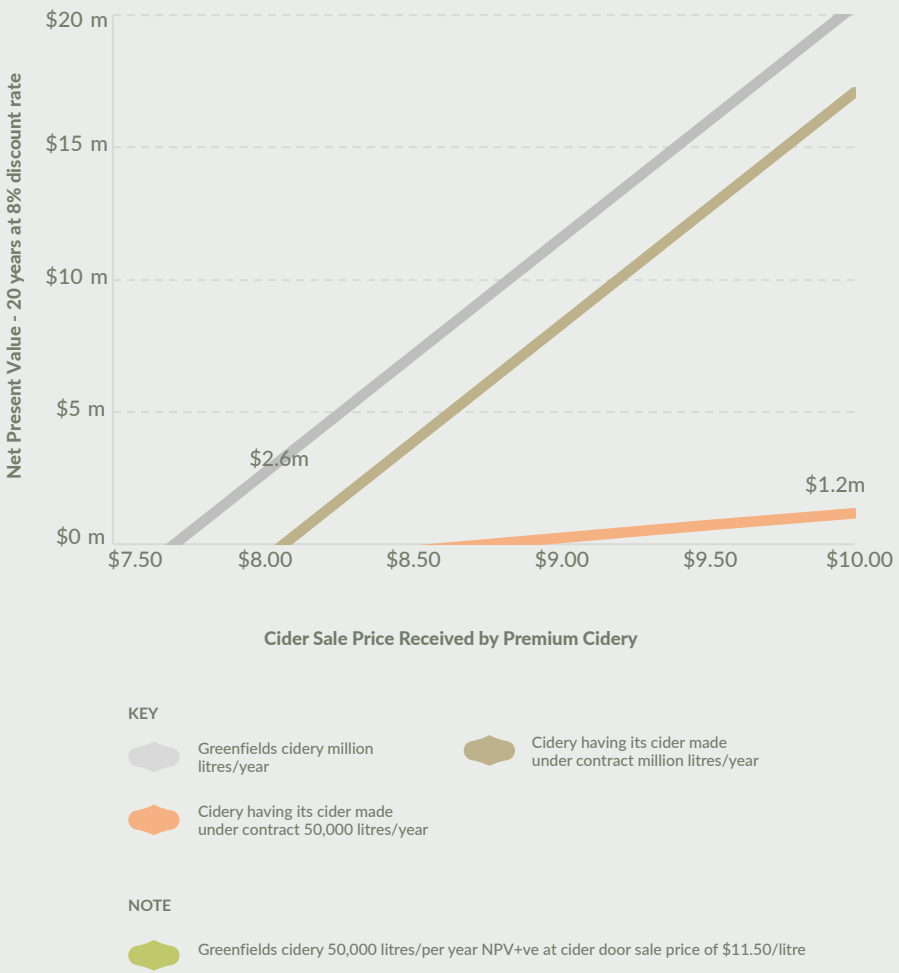


It could be possible to improve these estimated IRRs, and scale up with lower risk, if the cidery started out having its cider made by a contract cider maker. We estimate that a contract cider maker might charge between $1/litre to $2/litre depending on the extent of the services provided.

As illustrated in Figure 4 a million litre/year greenfields cidery could be worth $2.6 million (NPV, pre-tax, 8% discount rate over 20 years, paying $1/kg for its cider apples). Note that sales of one million litres from such a cidery would represent just 6% of current New Zealand cider production and imports. Cidery revenue per litre at $9 or $10/litre could create significant value which suggests that earnings could easily cover $1/kg for the premium cider orchardist. $9 or $10/litre would imply retail prices of $13.50 and $15/litre assuming a distribution and retail margin of 50% or the same sort of Free on Board (FOB) export price. This represents a margin over the cheaper ciders sold retail in New Zealand of around 30% to 40% and could be a competitive price in many export markets depending on their differing approaches to excise taxes. As a comparison of these prices, average packaged export wine sales were $10.16/litre[1]. Our analysis of the economics of cideries was based on more detailed work done by Simon Pearce of the Cider Factorie, Tauranga.

1 See NZ Wine KPI January 2024 at https://www.nzwine.com/media/2sea2gkt/nzwine-kpis-jan-2024.jpg

Figure 4: Estimated Premium Cidery Business Value vs Cider Sale Price



Achieving profitability is more challenging for a more boutique-sized cidery with a capacity of 50,000 litre/year. If that cidery outsourced its cider making it could reach a NPV of around 1 million with revenue of $10/litre, equivalent to a retail price of $15/litre. A similar greenfields cidery would need to bring in $11.50/litre to be NPV positive (retail price circa $17.25/litre, $13/750ml bottle or $8.60/500ml bottle assuming a distribution and retail margin of 50% or a similar FOB export price). While this may be challenging, it had been achieved in other markets, for example the UK.

Market Research

CiderCon and New Zealand Trade & Enterprise

Members of the Roadmap team attended CiderCon, the world's largest cider industry conference organised by the American Cider Association. Presentations at CiderCon 2024 highlighted developments in global cider markets and alcoholic beverage markets in general. A key point was that in many markets consumption of alcohol has been declining, often driven by younger segments drinking less, which could partly be the result of more focus on "wellness", as well as economic perceptions. As part of this overall picture, consumption of wine and beer has been falling. Global cider market metrics, provided by New Zealand Trade and Enterprise, also show that cider markets have been affected with many of the larger markets declining in size over recent years. However, within these broad tendencies there is also an important offsetting trend in many countries.

Drive for quality

"High quality" was identified as the most important factor influencing alcoholic beverage purchases in the US market at CiderCon by Nielsen. Sales of 'Regional' (premium) cider brands increased 7% in 2023, while sales of 'National' (mainstream) cider brands decreased 3.8%. This has been an ongoing trend with regional cider brands growing steadily from 33% of total cider sales to 55% of total cider sales in the past five years. Consumer research funded by the Pacific Northwest Cider Association also found that demand for 'hard ciders' had increased by 10 times in the last decade.

Younger, better off, more educated and drinking more cider

Another interesting finding from CiderCon was the higher proportion of younger, more educated and wealthier people drinking cider compared to wine and beer. So, despite the falling levels of alcohol consumption, often driven by younger segments, 52% of under 40 year olds were drinking cider while 33% were drinking wine or beer. Generally cider has significantly less alcohol than wine. The percentage of cider drinking college graduates and people with incomes over US$100,000 were also higher for cider than for wine and beer. The highest cider drinking age cohort in the USA and Canada identified by Mintel were Millennials (born 1980 to 1996). The 2024 Weston's Cider Report highlighted a similar trend in the UK market where over 60% of spend on crafted cider came from customers in the ABC1 social demographic. This segment is likely to hold professional or managerial positions in their careers and have completed higher education.

Premium pricing

The search for quality is also clear in the UK market where Weston's 2024 Cider Report noted that over recent years 'premiumisation' has continued with drinkers trading up to more expensive products. In 2023 'Off Trade'[2] 'crafted cider' grew 12.2%, nearly 10% more growth than standard ciders and brought in a price premium 45%. Meanwhile in the UK, 'On Trade'[3] craft ciders sold at a 37.6% premium over standard ciders.

2 'Off trade' is sales through retail outlets, e.g. supermarkets or liquor stores

3 'On trade' is sales in restaurants and bars etc

Potential markets

New Zealand Trade and Enterprise's high level market metrics provided useful insights about which export markets could hold the most potential for developing a premium cider industry in New Zealand. We investigated price, proximity, market characteristics and tariff rates to explore the markets that could have the most potential.

Australia

Australia is close to New Zealand and would therefore face lower transport costs for liquid exports than other markets. In 2022, it was the fourth largest global market in both value and volume of cider produced and the fifth highest market for cider consumption per capita and average price of the 25 largest markets. It has been declining in size over recent years like some other large markets. However, the value of its cider imports was the 10th largest globally in 2022 and grew by 14% a year between 2018–2022. The zero-tariff rating for imports of New Zealand cider is also an attraction for New Zealand cider exporters though its excise taxes on cider may be higher. GWI's consumer data may indicate a growing popularity of cider amongst Australians perhaps indicating that they are drinking more higher quality and imported ciders, while total production is slipping.

Nordics

Nordics (Denmark, Sweden, Norway and Finland) offer some potential as these markets rank highly on a global basis on several criteria, including Sweden and Norway on value in 2022, as well as for market growth between 2017 and 2022. Finland, Sweden and Norway were comparatively high consumers of cider/perry per capita in 2022 and Denmark, Norway and Finland had the top three average domestic cider prices but this might be explained by the comparatively high excise taxes in these markets. Norway is listed as zero-rating tariffs of imports of cider from New Zealand while the others had tariff rates of 5.48%. Overall, these markets could have potential but distance to market and excise taxes would likely mean that only high value quality ciders would have enough margin to make this economic.

USA

The USA was the third largest market by value and volume for cider/perry in 2022 and had the fourth highest average price. However, litres per capita drunk was only 600mls, which put it in 53rd place in the world. This low level of consumption compared to other markets suggests that cider is popular only in some regions in the USA. While average consumption is low, and the overall market is shrinking, the USA had the highest value of cider/perry imports in 2022 at US$418 million and they grew at one of the highest rates of 18% from 2018 and 2022. The tariff imposed on New Zealand cider exports to the USA is comparatively low at 2.4%.

UK

The UK market is the behemoth amongst all global markets with domestic production valued at US$4.3 billion, more than double the next largest. The UK also had 163 new cider product launches between 2020 and 2022. Only the Irish drank slightly more cider per capita than the UK. However, the average domestic price was relatively low at US$5.29 per litre. This was possibly due to a relatively low minimum apple juice content rule at 35%. Like other markets, the UK market has been shrinking but it had strong growth in higher value premium and craft ciders. The UK was the second largest importer after the USA at US$253.7 million imports in 2022 and these grew 8% per year from 2018 to 2022. The UK maintained a tariff rate of 4.8% on imported cider/perry from New Zealand in 2022 and its excise tax rate may be higher than New Zealand's rate.

China, Hong Kong and North East Asia

China and Hong Kong don't show up in the top 15 cider markets by size, but China was the third largest importer of cider/perry in 2022 at US$107 million. Hong Kong was fifth largest importer of cider/perry importing US$70.2 million with Japan in fourth place importing US$80.3 million. China's annual growth in imports between 2018 and 2022 by value was one of the highest globally at 27%, with Hong Kong growing over the same period by 15% per annum. Another very positive factor for New Zealanders planning to export cider to China and Hong Kong is that they impose no tariffs on cider/perry and could have lower excise tax rates.

Premium Cider Cultivars

Background

Dessert apples for fresh consumption are not suited to produce premium ciders but in New Zealand most ciders are made from this fruit. Internationally premium cider makers use specialty cider apple varieties, but these tend to have poor yields and are susceptible to pests and diseases. In New Zealand these apples account for less than one percent of apple plantings and generally belong to cideries.

Consumer driven approach to new cider apple variety development

Breeding unique cultivars is a relatively long-term activity. It requires access to genetics that produce moderate to high sugars, aromas, moderate acidity, and a range of polyphenols which provide the textural mouth feel qualities required by premium ciders. However, due to the complex chemistry of fermentation, it is not possible to predict the aromatic and textural quality of cider an apple will produce without actual fermentation (cider making).

Fast tracking cider apple varieties through screening dessert apple breeding programmes

The CANZ programme, which commenced in 2022, anticipates having varieties available from 2028 onwards due to its advanced and innovative population and selection management protocols. CANZ has also developed a high throughput micro fermentation system which allows it to screen large numbers of candidate selections efficiently and economically. It has initiated a programme with Prevar, the New Zealand Institute for Plant and Food Research (PFR) and two private New Zealand eating apple breeding programmes to evaluate material using the protocols and innovative technology it has developed. This is designed to identify apples which will produce unique premium ciders based on our understanding of consumer purchasing drivers and preference trends. This is already yielding results with several candidates identified. CANZ has used one selection locally and internationally to test its understanding of the cider styles that could differentiate premium New Zealand ciders.

Improved access to suitable genetics

The New Zealand Institute for PFR has a well-established apple breeding programme for dessert eating apples which has been historically funded by the Government and industry. It currently has no focus or mandate for breeding cider varieties. However, PFR is currently not making any material in its Apple Collection of National Significance available to the private sector as it is reviewing the legal status of doing so. This review has taken many years, and it is unclear when it will be completed. Clarity is needed about the availability of apple germplasm for breeding specialty cider apples as there would appear to be an opportunity to develop new high producing specialty cultivars that could be progressed.

IP protection and commercialisation of cider apple varieties

Protecting intellectual property is an essential mechanism for safeguarding the interests of variety owners and premium cider makers/marketers. Ownership and exclusivity are powerful drivers of investment in development and promotion. By using IP rights breeders, owners and those involved in cider making, distribution and marketing can build, protect and maintain consumer recognition and loyalty to distinctive New Zealand export focused premium ciders. Care will need to be exercised by stakeholders in the industry to ensure royalties are set to recognise the ability of a developing premium cider industry to sustain the cost.

New technologies

Breeding premium cider apples could be sped up through the adoption of genomic technologies for faster and more accurate screening, and the use of genetic modification to introduce genes of interest. Further research is needed on the biochemistry of fermentation to identify the contribution of the numerous compounds in apple juice to the flavour and texture of cider, gene mapping, identification of genetic mechanisms controlling important traits and genetic markers for those traits. The research needed to develop practical applications for these technologies will be complex, multidisciplinary and expensive. Research capability in these technologies exists in New Zealand research institutions such as CRIs and universities but also would involve international collaborations. This research typically requires government research grants or public/private research partnerships.

Developing trends in global cider preferences, New Zealand's expertise in apple breeding, germplasm collections and New Zealand's good growing conditions provide us the opportunity to develop a distinctive New Zealand export-focused premium cider industry.

Regulatory Scan

Consumers lack good information to help them make purchasing decisions under current regulations for cider and, to an extent, other alcoholic beverages. Some options which could improve this are:

- Follow the example of the regulation of wine by amending Standard 2.7.3 of the FSANZ Code to create a new definition for “fine”, “craft” or “premium” cider. This would mean that this type of cider would be made from 100% apple juice and apple juice products
- Existing products could remain able to call their products ‘cider’, for example, ‘cider with raspberry’ as they do now
- Introducing consistent labelling about, for example, sugar content (similar to wines).

In addition, remove the distortion in the current excise tax rate on cider compared to beer by aligning the excise rates at ‘containing more than 2.5% volume per litre of alcohol’ with the change of rate for ciders, spirits, perry and mead containing more than ‘6% volume per litre but not more than 9% volume per litre.’

These changes would allow the opportunity for a new premium cider category to grow, retain the existing options for those wishing to continue to sell other types of cider and fruit wines, while providing better information to guide consumer purchasing choices.

Stakeholders' views

The Roadmap team held discussions with 24 stakeholder organisations about customer needs, cultivars, and the production and economics of premium cider apples. The objective was to explain this initiative and get their feedback and understand their views about this premium cider initiative. The stakeholders the team held discussions with are set out in Table 1 below.

These discussions highlighted:

- For premium cider to grow to become a sector bringing $1 billion per year in 15 years it would be critical to establish a value chain that could produce truly, distinctive and unique set of premium ciders
- New Zealand had achieved this sort of sector growth with a number of primary products including salmon, Sauvignon Blanc and aromatic hop varieties
- While the success of these products had elements of luck in timing and resources available to them, the ability to differentiate these products from competition in global markets based on taste and quality was a key factor
- There were a variety of interesting cultivars with traits that could be developed to produce levels of tannins, polyphenols, sugars and acids used to make premium ciders
- There was a variety of rootstocks and capacity for nurseries to produce these cultivars that could be used to establish commercial cider orchards
- Potential earnings from growing premium cider, and contracts for supply that helped manage production risks, would be critical for landowners and orchardists to grow premium cider apples
- Cider orchards were not covered by New Zealand Apples & Pears and there could be biosecurity and other issues arise, as they do today with other primary sector activities in the vicinity of fresh apple orchards
- There were two main large apple juice processors, both in Hawke's Bay, producing both concentrated apple juice and fresh apple juice for cider makers and juice manufacturers
- There were valuable potential uses for the by-products of cider making in addition to using pomace etc. as stock food
- Currently there were very few cider makers using almost all apple juice to ferment cider in New Zealand with most New Zealand-produced ciders being fermented using apple concentrate
- The current regulation of cider was inadequate and caused confusion for consumers about what they were actually buying.

The stakeholder discussions also identified some critical challenges as follows:

1. Accessing and developing premium cider cultivars to achieve production of 80 tonnes/hectare (Currently this is an average fresh apple level of production but often double that of traditional cider cultivars)
2. Develop premium cider apple orchards using identified cultivars that produce an average of 80 tonnes/hectare and are valued by cider makers at, at least $1kg
3. Create excitement in target market of younger, more educated and wealthier customers and break down long running perceptions of cider being a sweet and cheap alcoholic beverage amongst customers who may be cider curious
4. Inconsistent regulations confuse customers and the uneven application of excise taxes currently distorts production and consumption decisions.

Table 1: Stakeholders Roadmap Team held discussions with

Stakeholder(s)	Organisation(s)
Duncan Scotland, Nate Parker & Satish Kumar	Plant & Food Research
Con Williams	Craigmore
Hayden Green and Dean Smith	Genesis Nurseries
Tom Keefe, Robin Hape, George Reedy, Luke Hansen	Ngāti Pāhauwera Development Trust
Paul Frewen	Cedenco
Karen Morrish	NZ Apples & Pears
Josh Townsend	Zeffer
Tim Shallard	Morning Cider
Blair Steward	NZ Hops
Richard Burns	Orchardist & Cider Maker, Hawkes Bay
Mark Apatu	Apatu Farms
Dave McGaviston	Orchardist, Tapawera, Nelson
Jody Scott	Orchardist and Cider Maker, Moutere, Nelson
Marina Hirst Tristram and Karla Bradley	Kono NZ, Motueka, Nelson
Bruno Simpson, Tallulah Simpson & Kate Marshall	Waimea Nurseries, Appleby, Nelson
John Loughlin	Rockit Chair, also PowerCo, Zespri 2008-13, Hawkes Bay
Bevan Wait	Zeden Cider, Bay of Plenty
Phil Gregan	NZ Wine
Tim Morris	Coriolis
Mark Balchin, Steve Boggs and Maya Tangestani	Mara Bio, Hastings
Paul Paynter	Orchardist, Cider Maker, Yummy Fruit, Hastings
Steve Smith	Craggy Range
Carmen Gray	Elemental Cider, Horowhenua
Iain Latter & Daniel Kilsby-Halliday	Orchardists, Horowhenua

Roadmap to building a billion-dollar export cider industry in 15 years

Cider, wine, and beer were first developed over 4,000 years ago with cider reaching its zenith in 18th Century England when it was regarded to be as good as the best French wines.

Today cider is the smallest of the fermented alcoholic beverage categories with the Weston's 2024 Cider Report estimating that the global cider market is over 2.6 billion litres. This report and others highlight that the cider market has started following the same premiumisation trend as other beverages.

The success of Sauvignon Blanc and aromatic hops demonstrated the importance of developing a unique point of difference based on flavour. We can do the same for cider through the development of new cider apple cultivars.

Assuming an average export price of $8 per litre, $1 billion exports would require about 2,232 hectares of cider apple orchards. This compares to 10,000 hectares used to grow eating apples.

- 125 million litres cider ($1 billion/$8 per litre)
- 179 million tonnes cider apples (assuming 70% juice yield)
- 2,232 hectares cider orchards (assuming 80 tonnes per hectare)

This report confirms there is an opportunity for New Zealand to develop premium cider into a major new export industry. The economic analysis demonstrates an attractive return on investment is possible for both cider apple growers and cider makers.

We see this as an opportunity for industry to partner with MPI in an Sustainable Food and Fibre Futures (SFF Futures) programme for the early phase of new industry development. This could de-risk and accelerate sector growth allowing us to hit the 15-year growth target with more confidence.

Cider Apples New Zealand is seeking expressions of interest from organisations to participate in this SFF Futures Partnership application.

We are proposing a 7-year SFF Futures Partnership Programme with 6 workstreams as outlined below. The budget will be refined in consultation with programme partners and is expected to be multimillion dollar in scale.

Proposed outline for a Sustainable Food and Fibre Futures Partnership

Workstream 1

Develop a pipeline of new cider apple cultivars that will provide a unique point of difference for cider makers.

- CANZ to expand their accelerated cider apple breeding programme
- CANZ to work with Prevar and private apple breeders to screen existing apple selections for apples with high cider potential

Workstream 2

Develop cider orchard design and management systems for NZ conditions that are globally competitive.

- Establish a 5-hectare model orchard to optimise orchard design and management systems including mechanized harvesting
- Develop capacity to supply small commercial quantities of highly promising new cider apple varieties for cider market testing purposes
- Establish an interested landowner group, including iwi, to expand production of promising cultivars and evaluate cider apple orchards as a productive, sustainable land use opportunity

Workstream 3

Develop a cider science and consumer research programme to support industry innovation and growth.

- Consumer driven research to understand customer preferences in key markets
- Science to drive continued innovation to support development of unique cider styles that reflect consumer research through new apple varieties or cidermaking technology
- Develop commercially viable and sustainable products from pressed apple biproduct

Workstream 4

Develop cider industry capability and regulatory framework to support growth.

- FWCMA will consult with stakeholders with a view to expanding their remit to include cider apple production. This will create an industry body that has a similar scope to New Zealand Winegrowers
- Establish a leadership development programme for the cider industry
- Establish a new standard of identity for premium cider. In addition to retaining the existing standard of identity
- Develop proposal to standardise excise tax across all alcohol categories so that cider is not disadvantaged

Workstream 5

Assess feasibility to leverage underutilized wine production assets to quickly scale capacity while also supporting wine producer economics.

- Conduct a feasibility study and establish a pilot trial

Workstream 6

Pathway to Market for Premium Cider.

- Targeted research into premium cider segment in key markets
- Assess channel options and distribution models for premium cider in key markets
- Establish a market testing programme for precommercial premium cider trials

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ROADMAP FOR

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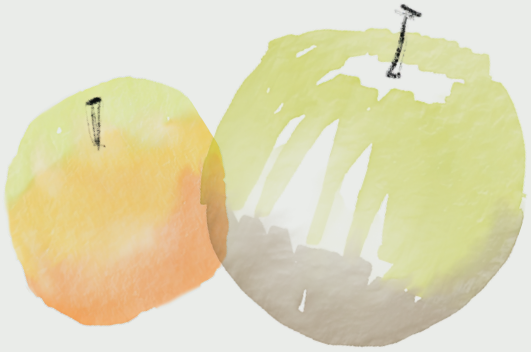

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2024

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Introduction

This 'Roadmap' report investigates the how a new premium cider industry could be developed in New Zealand. The goal is to produce unique New Zealand ciders with a taste that excites consumers around the world, emulating the success of other unique New Zealand beverages such as Sauvignon Blanc and beer using New Zealand hops. It is based on developing high producing apple cultivars with distinctive levels of tannins, polyphenols and sugars and better pest and disease resistance rather than making cider from reject fresh apples, or from often, lower producing more pest and disease prone traditional cider apples cultivars.

This report discusses:

- The potential profitability of a premium cider industry for those along the value chain
- Market research of potential key export markets
- Opportunities for further development and commercialisation of new cider apple cultivars
- The regulatory issues which could affect this programme, and
- Stakeholder view's following discussions with interested cideries and landowners, including Māori/iwi groups, about customer needs, cultivars, and production of premium cider apples.

Cider Apples New Zealand (CANZ) sees an opportunity to develop a new industry in New Zealand that will supply premium cider both domestically and for export. The long-term goal is to create a new high value industry with an export market worth $1 billion, by 2039. One billion represents around 40% of New Zealand wines exports. This Roadmap Project identifies and fleshes out the key issues and work streams required to coordinate the emerging sector and facilitate faster growth, utilising competitive advantage provided from new cider apple cultivars.

This Roadmap project is the first phase on the path to achieve this long-term goal. If this phase is successful, phase 2 will build on the outcomes from this project by providing an outline of workstreams for a further SFF Futures Partnership application and raising private investment.

Profitability of Premium Cider?

The aim of this section of the Roadmap is to complete an analysis of the economic potential of a premium cider industry for those along the value chain.

The potential earnings along the value chain, from the plant breeder to the consumer is critical to this initiative. As Rockit Chair John Loughlin put it:

"... there would have to be belief in the pathway through the value chain from the orchard to the pressing to the marketing to the consumer, who is keen to drink a lot of it."

The Roadmap team was assisted by Jack Hughes, and his team from Fruition Horticulture HB Ltd,[4] who scoped out an estimate of a profitable growing system for cider and a development budget for a new investment in a greenfields orchard and brownfields investment on an existing orchard. Simon Pearce, from Tauranga's Cider Factorie, also estimated some cidery development costs based on his long experience in cider and wine making.

4 For further information see **https://www.fruitionhort.com/**

Cider orchard profitability?

Cider orchard annual production costs

MPI's pipfruit orchard model as a benchmark

Fruition used MPI's Pipfruit Orchard Model for growing fresh apples as a benchmark data set to estimate some of the potential premium cider growing costs in Hawke's Bay. This included actual fresh fruit orchard data for 2022. MPI's fresh apples orchard expenses data and information were collected from a survey panel of contributing orchards and averaged (see Appendix One for further information on MPI's Pipfruit Orchard Model).

Fruition assessed:

- Production costs to the orchard gate
- Savings from growing cider apples instead of fresh apples and estimated the amounts
- Additional cost items not fully covered in the MPI model.

At the Hawke's Bay average export yield of 54 tonnes/hectare, the production cost to the orchard gate in MPI's 2022 actual was $1.41 cents/kg which was made up of:

- 60c/kg for total post-harvest expenses
- 55c/kg for total labour expenses
- 21c/kg for total other orchard expenses
- 5c/kg for total overhead expenses.

Adjustments to fresh apple orchard costs for cider production

The post-harvest expenses of 60c/kg, would not be relevant to the production of cider apples. So, this cost, which made up 42% of orchard working expenses for fresh export apples was subtracted leaving 81c/kg. Fruition also adjusted other cost items as follows to estimate premium cider orchard production costs.

- **Harvesting all fruit in one pick reduces the harvest cost by 50% from $10,110/hectare to $5,055/hectare**. The harvest would be a manual 'strip, juice' picking of trees where all fruit is harvested at once and careful handling is not required
- **25% reduction in other wages from $6,500/hectare to $4,875/hectare** because some jobs like summer pruning would not be necessary for cider production
- **50% reduction in hand thinning costs from $5,600/hectare to $2,800/hectare** as some crop regulation would be needed for young premium cider trees, and for preventing biennial bearing, but intensive export crop preparation would not be required
- **50% reduction in disease, weed and pest control from $4,800/hectare to $2,400/hectare** to provide a moderate level of control without compromising tree growth and development and crop potential
- **25% reduction in pruning from $4,000/hectare to $3,000/hectare** but continuing to regulate cropping and promote good tree form for long term performance.

The net of these reductions would see **total orchard costs fall from $43,860/hectare to $30,980/hectare.** For a 54 tonne/hectare crop this is a premium cider orchard working expenses of 57c/kg.

Mechanisation options

Harvesters such as the Polish Weremczuk harvester could have a lot of potential to minimise labour costs on larger orchards. It is a full-row tractor towed harvester designed for sour cherries, prunes, olives, almonds, industrial apples and other stone fruit. These machines are designed to work in orchards with espalier structures. The costs of these harvesters range from $US157,000 to $US173,000 (~$NZ262,000 to $NZ288,000).

Figure 5: Polish apples harvester

Source: Weremczuk Agromachines, FELIX/Z KWZ 280, KWZ 315 Brochure, Pages 3,4 & 5. See https://www.youtube.com/watch?v=F3IoFiB9Osk for more information, maximum tree height 3.85 metres, minimum row width 4 metres, maximum canopy width 2 metres, minimum tree spacing 1.5 metres and minimum turning space at end of rows – 8 metres.

However, there are also lower cost mechanical harvesting options, for example Peckham's ground collection harvester, which would cost around $NZ100,000 new.

Figure 6: Peckham's ground collection apple harvester

Source: Visit to Jody Scott at Peckhams, Moutere, Nelson.

US researchers have estimated savings of between 20% and 50% using mechanised harvesting of cider apples compared to hand picking costs on a range of equipment and farm sizes. This study found that mechanical harvesting was economically advantageous compared to hand harvesting across a wide range of orchard sizes and machinery options. Larger orchards had a faster recovery of the capital outlay on machinery and greater overall savings in comparison with hand harvesting. However, this study pointed out that even 5-acre orchards showed that it would be profitable to replace harvest labour with mechanical harvesting. Over the expected lifetime of the machinery, harvesting costs were reduced by more than half in this study's 15- and 60-acre orchard models when compared to hand harvesting at 2022 wages. Using the harvesters from 15- and 60-acre farm models in orchards twice the size as originally modeled decreased average harvest costs to 64% and 65% of hand harvesting costs, respectively.[5]

Fruition found US and New Zealand hand picking costs broadly similar and tested these savings from Year 3 onwards in its orchard development budgeting.[6]

Cider orchard upfront investment costs

To estimate the investment needed to develop a 10-hectare cider apple orchard Fruition made assumptions about key factors such as canopy width, access width, row width, tree height, supported tree height, canopy design/tree form and tree spacing. Fruition also investigated variety growth habits noting that variety vigour and growth habit will influence tree form, rootstock and spacing.

5 Mechanically harvesting hard cider apples is more economically favorable than hand harvest, regardless of farm scale, Adam Karl, Whitney Knickerbocker and Gregory Peck. 6 July 2022. American Society for Horticultural Science 2022, https://doi.org/10.21273/HORTECH04988-22 . See Page 365

6 Fruition had already subtracted cost savings for pruning, thinning and picking premium cider orchard production on a cider orchard compared to a fresh apple orchard in the Profitable growing system analysis above.

Greenfields and brownfields investment scenarios

Fruition developed an orchard development plan with two scenarios: undeveloped greenfield orchard site with a 12-year lease and a brownfield redevelopment of an existing orchard. The brownfield redevelopment assumes conversion of 10 hectares of an existing young, healthy, high density orchard to cider apple production. The trees are assumed to be grafted over to a dedicated cider orchard. In this scenario, no land or orchard development investment is needed. However, the land lease cost has been doubled to reflect the higher capital land value of the developed and existing orchard compared to the greenfields new orchard development scenario. The key differential between these scenarios is summarised in below.

Table 2: Key assumptions in greenfield & brownfield Orchard Development Scenarios

Greenfield Upfront Investment Costs	Brownfield Redevelopment
$45,455/hectare for premium cider apples trees, including royalty ($25/tree)	A higher lease cost that covers the trees, all the infrastructure and tree support set at $6,000/ha from year 1
$24,249/hectare for tree support (3m posts supporting trees to 2.2m height)	
$7,900/hectare investment in land development and preparation	
$14,000/hectare for water supply and irrigation	
Year 3 investment of $1,000/hectare to install frost fans	
$3,000/hectare lease cost from Year 4 onwards ($1,500/hectare over years 1 to 3)[7]	

Source: Fruition[8]

Under both scenarios these costs were also assumed

- $1,500/hectare/year for basic **machinery** for 10 hectares – cost spread over 10 years[9]
- $140/hectare/year for basic staff **amenities**, again cost spread over 10 years[10]
- $4,000/hectare for **management** of the orchard, maintenance and staff supervision
- $33/hour for all **labour** on the trees and crop which includes commissions etc.

7 A higher lease value results from the land being developed with drainage, water, power etc.

8 The cost of grafting is assumed to be equivalent to tree pruning and training costs in greenfield budget and yield by year is assumed to be equivalent to rate of yield accumulation in greenfield budget.

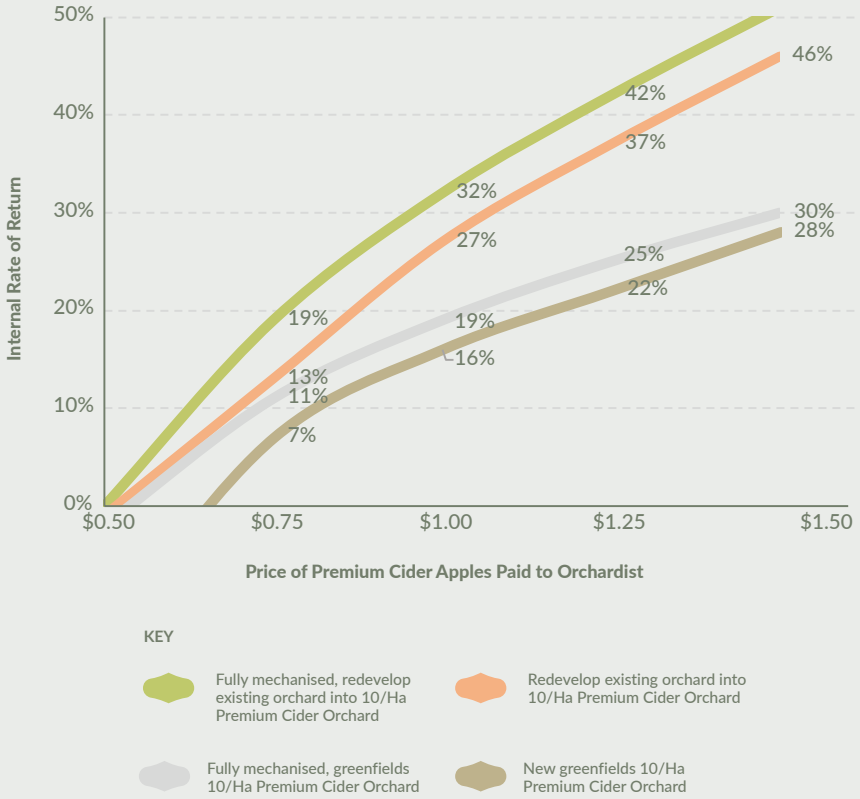
9 Includes New Holland T4 tractor, Cropliner DSV 920 sprayer, tractor forklift, mower, mulcher, 4-wheeler, pruning sweep, weed spray unit, tractor mini lift etc.

10 Includes Portacom, 3-bay shed, septic water connect, site office/smoko etc.

Estimated cider orchard profitability

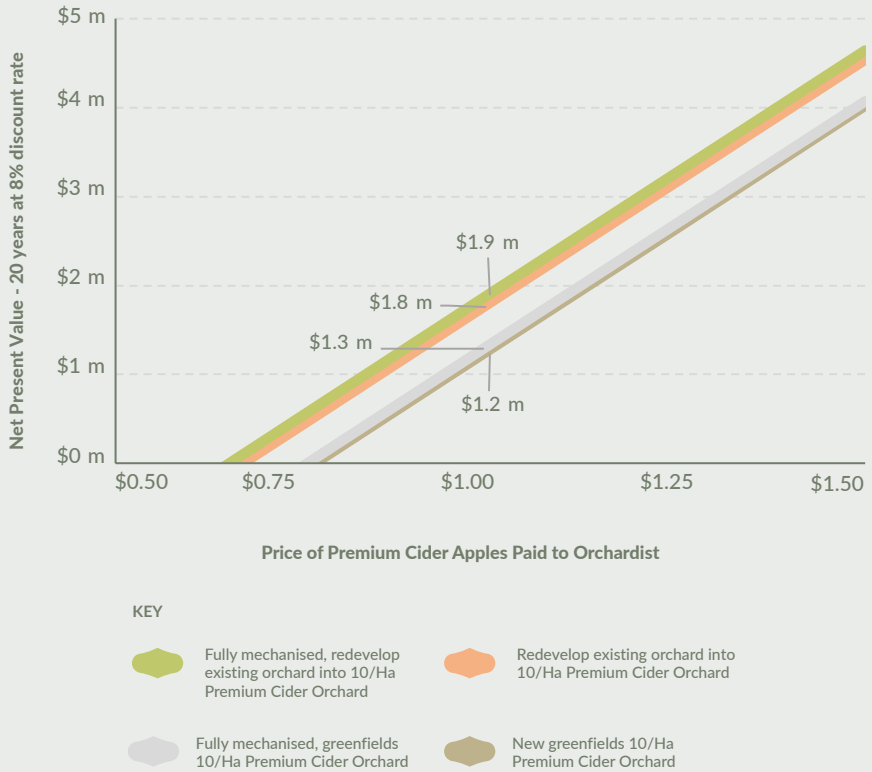
As shown in Figure 7 below, a greenfields orchard could expect to earn an internal rate of return (IRR) of 16% if it was paid $1/kg for its apples. However, it would be possible to achieve much better results from redevelopment of an existing orchard (brownfields). In a brownfields scenario upfront costs are lower and the IRR improves to 27%. Adding the savings that should be possible from mechanisation further improves both the greenfield and brownfield orchard development scenarios. The greenfield could expect to earn an IRR of 19% a brownfield redevelopment 32%.

Figure 7: Estimated Premium Cider Orchard IRR vs Apple Price



As is shown in Figure 8 below, a greenfields orchard could be valued at $1.2 million (a net present value (NPV) at a discount rate of 8% over 20 years on estimated pre-tax cash flows). A brownfields scenario improves the NPV to $1.8 million. Consistent with their IRRs, adding savings from mechanisation improves both the greenfield and brownfield scenarios. The greenfield could expect to achieve a NPV of $1.3 million while the brownfield NPV could rise to $1.9 million.

Figure 8: Estimated Premium Orchard Business Value vs Cider Apple Sale Price



At the $1/kg orchard gate price, the analysis suggests that cider apples could be a lucrative investment for orchardists. At this price the forecast net cash operating surplus per year runs at between $39,000 per hectare and $49,000 per hectare depending on whether the investment is greenfields or brownfields and is mechanised. This compares to MPI's pipfruit orchard model that calculates an average Hawke's Bay fresh apple orchard cash operating surplus of $8,514 per planted hectare in 2021, operating losses of -$3,273/ha in 2022 and a forecast loss of -$1,467/ha in 2023.

Currently, $1/kg is a top end price for the best quality specialty cider apples. As is common in the UK, there would need to be a contract in place, with a price around this level or better and a term that adequately compensated the orchardist for the risk of his/her investment in premium cider apple cultivars. For cider makers to pay $1/kg, they would need to earn a cider door price that would cover this fruit cost and make a reasonable return from exporting or domestic distributors and retailers.

Cidery profitability?

Approach

The Roadmap team commissioned Simon Pearce of Tauranga's Cider Factorie to investigate the economics of a premium cider cidery. He used his 20 years of experience in both the cider and wine industry, in New Zealand and Australia, working in a range of business sizes to estimate these costs.

Four scenarios were used including benchmarking against winery costs as follows:

5. Cider – 50,000 litres/year
6. Wine – 50,000 litres/year
7. Cider – 1,000,000 litres/year (this would represent 6% of 2022 New Zealand cider production and imports)[11]
8. Wine – 1,000,000 litres/year.

The key price assumptions were:

- Price per ton of New Zealand wine grapes = $2,400/tonne
- Wine export price ex-New Zealand = $10/litre
- Premium cider apples = $500 and $1,000/tonne (50c/kg and $1/kg)
- Average juice yield of 70%.

Cidery capital costs

Table 3: Cidery capital costs

	50,000 litre Capacity	1 Million litre Capacity
Tanks	$52,000	$1,039,500
Crushing Equipment	$3,000	$50,000
Pressing Equipment	$10,000	$100,000
Crossflow/Filtration	$30,000	$150,000
Packaging	$50,000	$200,000
Cooling	$15,000	$100,000
Miscellaneous	$5,000	$700,000
Total	**$165,000**	**$2,339,500**
Depreciated over 10 years	$16,500	$233,950

Source: Simon Pearce

11 See NZTE Market Matrix Cider Apples NEW ZEALAND and Stats NEW ZEALAND Infoshare Group: Alcohol Available for Consumption – ALC, Table: Litres of Beverage (Qrtly-Mar/Jun/Sep/Dec).

The cost of bulk storage is based on two-thirds used stainless steel and one-third new. Simon's rationale for this was that there were numerous used vessels available on the New Zealand market and, the most likely scenario when establishing a new facility, would be to source a significant proportion of the storage stainless steel used. New vessels cost approximately 2.5 times that of used.

The cost for processing equipment was based on Simon's previous experience in starting up a similar sized cidery (50,000 litre), and market price for new/used equipment. He assumed half new and half used equipment.

Miscellaneous includes the installation, as well as pumps, hoses, fixed piping, lifting machinery etc.

Table 4 sets out the annual costs for a 50,000 litre capacity winery and cidery. The cost of fruit is what drives the differentials in Total Annual Costs. All other costs are the same. The lower assumed cost of cider apples drives a lower beverage cost per litre.

Cidery operating costs

Table 4: Annual costs for 50,000 litre capacity cidery

	Wine ($2400/t)	Cider ($500/t)	Cider ($1000/t)
Fruit Cost	$171,429	$35,714	$71,429
Lease	$50,000	$50,000	$50,000
Capital Cost depreciated 10 years	$16,700	$16,700	$16,700
Staff	$150,000	$150,000	$150,000
Administration	$30,000	$30,000	$30,000
Utilities	$10,680	$10,680	$10,680
Advertising and Insurance	$10,000	$10,000	$10,000
Additives / Other Inputs	$5,000	$5,000	$5,000
Packaging	$75,000	$75,000	$75,000
Freight	$3,570	$3,570	$3,570
Total Annual Costs	**$522,379**	**$386,664**	**$422,379**
Beverage Cost/Litre	**$10.45**	**$7.73**	**$8.45**

Source: Simon Pearce, Note Utilities are made up of electricity/diesel – $10,000, water (8L/L) – $450 and by-product water ($4.5/ML) – $230 and advertising and insurance are estimated at $5,000 each

Table 5 provides an analogous picture of the annual costs for a million litre capacity winery and cidery. Again, the cost of fruit drives the differentials in Total Annual Costs, the lower cost of cider apples drives a lower beverage cost per litre and all other costs are equal.

Table 5: Annual costs for 1 million litre capacity cidery

	Wine ($2400/t)	Cider ($500/t)	Cider ($1000/t)
Fruit Cost	$3,428,571	$714,286	$1,428,571
Lease	$160,000	$160,000	$160,000
Capital Cost depreciated 10 years	$200,000	$200,000	$200,000
Staff	$850,000	$850,000	$850,000
Administration	$200,000	$200,000	$200,000
Utilities	$192,000	$192,000	$192,000
Advertising and Insurance	$100,000	$100,000	$100,000
Additives/Other Inputs	$100,000	$100,000	$100,000
Packaging	$1,500,000	$1,500,000	$1,500,000
Freight	$71,400	$71,400	$71,400
Total Annual Costs	**$6,801,971**	**$4,087,686**	**$4,901,971**
Beverage Cost/Litre	**$6.80**	**$4.09**	**$4.90**

Source: Simon Pearce, Note Utilities are made up of electricity/diesel – $150,000, water (8L/L) – $12,000 and by-product water ($4.5/ML) – $30,000 and advertising and insurance are estimated at $50,000 each.

Land and building lease costs were based on industry standards for industrial/commercial tenancy in the regions where wineries and cideries would be located, with an average of $160/m3. It is assumed that the premises include the necessities for processing, including warehousing and by-product water disposal.

Staffing was based on Simon's previous experience of the workforce required. Administration costs include reception, payroll, stationary expenses, analysis etc.

Utilities include power, whether from electricity or diesel, water and by-product water. Industry standard is 8L water per litre of product, with most if not all this water required to be treated as by-product water. Rates are based on the accepted cost of potable water, and the cost to treat by-product water. Advertising and insurance were assumed to be additional.

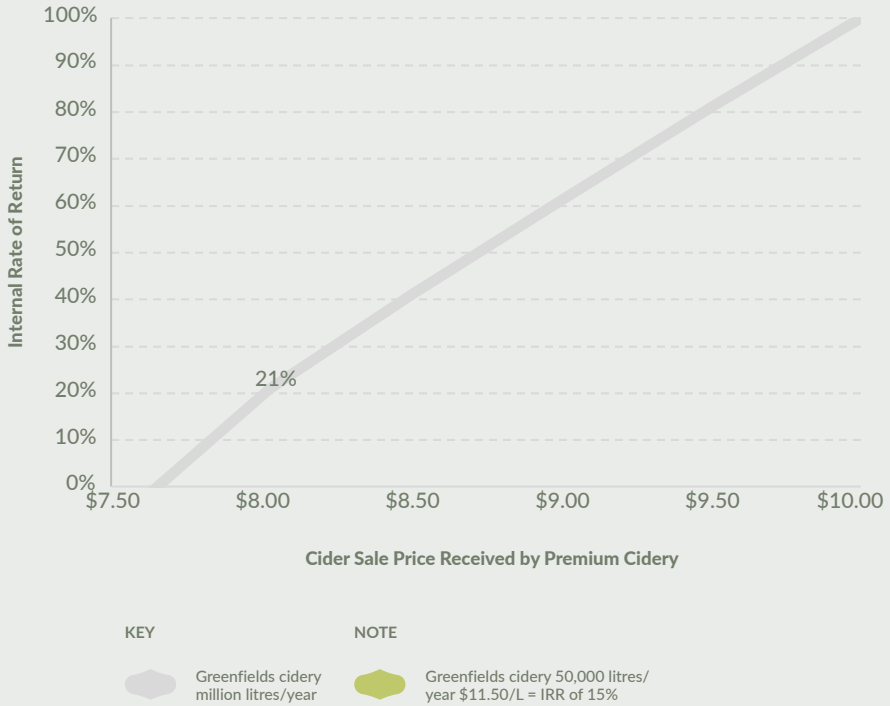
Packaging of the product was based on 100% in glass. There was no significant difference between the size format of the packaged product assumed. It included bottles, labels, closures and cardboard etc.

Freight was assumed to cover incoming costs only and did not include the cost of freight to any export markets. It is also assumed that processing was done near the sources of fruit.

Estimated premium cidery profitability

Figure 9 shows that a million litre capacity greenfields cidery could achieve an IRR of 21% assuming it earned $8/litre either exporting or on the domestic market. This assumes the cidery is paying a $1/kg for its specialty cider apples which should support a healthy return for the orchardist as discussed above. It also assumes the higher excise tax rate of $2.84/litre based on a 6.5% ABV cider. A more boutique greenfields cidery producing 50,000 litres a year would need to earn at a much higher level i.e., $11.50/litre to achieve an IRR of 15% (again assuming it is paying $1/kg for its cider apples).

Figure 9: Estimated Premium Cidery IRR vs Cider Sale Price

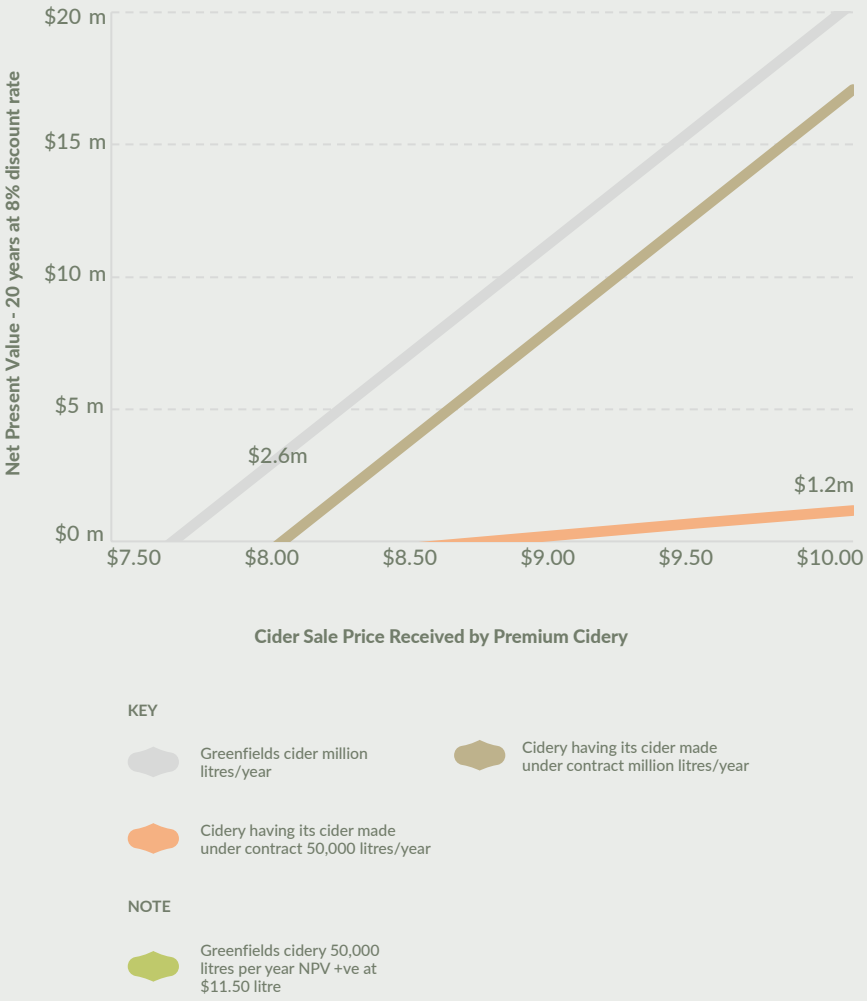


It could be possible to improve these estimated IRRs, and scale up with lower risk, if the cidery started out having its cider made by a contract cider maker. We estimate that a contract cider maker might charge between $1/litre to $2/litre depending on the extent of the services provided.

As illustrated in Figure 10, a million litre a year greenfields cidery could be worth $2.6 million (NPV, pre-tax, 8% discount rate over 20 years, paying $1/kg for its cider apples). Note that sales of one million litres from such a cidery would represent just 6% of current New Zealand cider production and imports. Cidery revenue per litre at $9 or $10/litre could create significant value which suggests that earnings could easily cover $1/kg for the premium cider orchardist. $9 or $10/litre would imply retail prices of $13.50 and $15/litre assuming a distribution and retail margin of 50% or the same sort of FOB export price. This represents a margin over the cheaper ciders sold retail in New Zealand of circa 30% to 40% and could be a competitive price in many export markets depending on their differing approaches to excise taxes. As a comparison of these prices, average packaged export wine sales were $10.16/litre[12].

12 See NZ Wine KPI January 2024 at https://www.nzwine.com/media/2sea2gkt/nzwine-kpis-jan-2024.jpg

Figure 10: Estimated Premium Cidery Business Value vs Cider Sale Price



It is more challenging for a more boutique-sized cidery with a capacity of 50,000 litre/year. If that cidery outsourced its cider making it could reach a NPV of around 1 million with revenue of $10/litre, equivalent to a retail price of $15/litre. A similar greenfields cidery would need to bring in $11.50/litre to be NPV positive (retail price approximately $17.25/litre, $13/750ml bottle or $8.60/500ml bottle assuming a distribution and retail margin of 50% or a similar FOB export price). While this may be challenging, it had been achieved in other markets, for example the UK, as our UK craft cidery case study: Little Ponoma - demonstrates.

Conclusion on profitability

Our analysis of the potential earnings from premium cider orchards and cider making indicate that both could be very profitable. For this to happen, the orchardist would need to earn $1/kg or more for cider apples, and the cidery, with a million litre/year capacity, would need to earn revenue of $8/litre or more. With a distribution and retail margin of 50%, the implied retail price is at least $12 per litre. This is about a dollar a litre more than current New Zealand supermarket prices for cheaper cider made from apple concentrate.

In New Zealand, and offshore, consumers are prepared to pay more than $12/litre for premium and craft ciders. These ciders in New Zealand are currently priced online at 10% to 50% more. This is consistent with the premium for craft ciders in the UK market where craft ciders have a premium of 40% above standard ciders. In both the UK and US markets growth in craft cider sales has been strong, driven by demand from younger, wealthier and more educated consumer segments.

Market Research

The aim of this section of the roadmap is to conduct market research for key export markets and build a time series of markets statistics for use over the long term.

Findings from CiderCon and Weston's Cider Report

CiderCon is the world's largest cider industry conference and is organised by the American Cider Association. The 2024 conference was the largest ever with 1,250 registrations from 14 countries. This represented 20% more people than 2023. This section summarises the key findings from the team's attendance. It is based on four cider market research papers presented at CiderCon, as well as notes on panel discussions taken by the team.

Growth in 'Regional' cider brands in the US

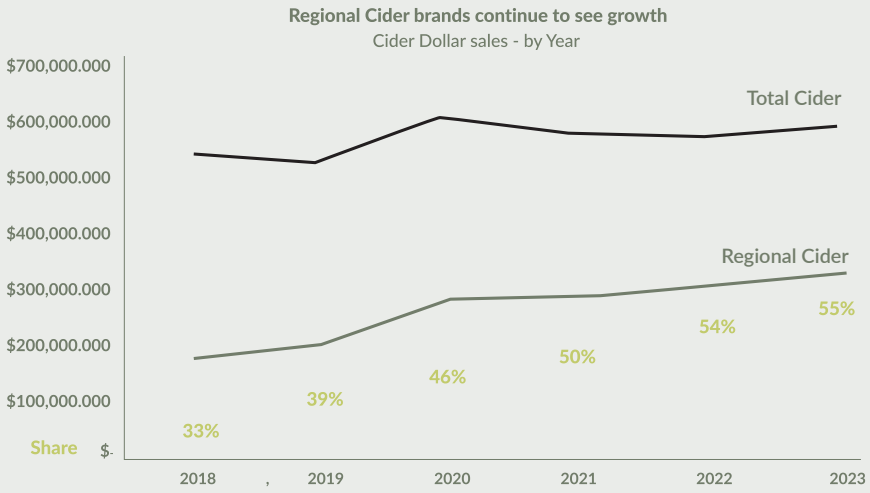
In many markets total consumption of alcohol has been declining, often driven by younger segments drinking less.[13] According to the US Wine Council this was partly the result of more focus on "wellness", and partly about economic perceptions.[14] Consumption of wine and beer was also trending down. Within this overall picture there were some interesting trends going on within many markets. The US was typical of this, with sales of 'Regional' (premium) cider brands increasing 7% in 2023, while sales of 'National' (mainstream) cider brands decreased 3.8%. Within the US market, Ready to Drinks (RTDs) were the other growth area in value at 5.9%.[15] Regional cider brands have steadily grown from 33% of total cider sales to 55% of total cider sales in the past five years as is evident in Figure 11 below.

13 Mintel presentation, Slides 1 & 4, also see Weston's Cider Report 2024, Page 21

14 Wine Market Council presentation, Slide 3 https://winemarketcouncil.com/

15 Ibid, Slide 5

Figure 11: US market growth in regional cider brands



Source: NIQ Presentation at CiderCon 2024, Portland Oregon, USA

As further evidence of this trend, consumer research funded by the Pacific Northwest Cider Association found that demand for 'hard ciders' had increased by 10 times in the last decade.[16]

16 Consumer Research funded by the Pacific Northwest Cider Association, Slide 3

Cider drinkers tend to be younger, more educated and better off

Another interesting finding was the high proportion of younger, more educated and wealthier people drinking cider compared to wine and beer. These trends are apparent in Table 6 where under 40-year-olds were drinking cider much more than wine or beer. Only 12% of over 60 year olds were drinking cider. The percentage of cider drinking college graduates and people with incomes over $100,000 were also higher than for wine and beer. The highest cider drinking age cohort in the USA and Canada identified by Mintel were 'Millennials' (born between 1980 and 1996). In 2022, 28% Canadian and 27% Americans in that cohort drank cider.[17]

Table 6: Drinking trends within the US market from CiderCon

	Cider	Wine	Beer
Consumption by Under 40 year olds	52%	33%	33%
Consumption by Over 60 year olds	12%	34%	29%
Consumption by College Graduates plus	59%	53%	43%
Consumption by people with >$100,000 income	58%	53%	47%
Consumption by Females	46%	55%	37%
Consumption by Males	54%	45%	63%

Source: Wine Market Council presentation Slides 11, 13 and 17

Trend towards quality alcoholic beverages

Nielsen's presentation at CiderCon confirmed that "high quality" was the most important factor influencing alcoholic beverage purchases. This was because, given a fixed amount of money to spend on alcoholic beverages, 70% said they would prefer to buy one to two premium drinks rather than three to five average or value drinks. Another interesting finding was that more than 50% of cider drinkers agreed that knowing the apple varietals used in cider would make it more appealing. Bottles were found to convey a premium image that could sustain a higher premium.

Nielsen also found that wine drinkers were more comfortable paying a premium than beer drinkers. The direct-to-consumer channel was important for premium beverages so that tasting rooms and online sales dominated sales of premium alcoholic beverages along with restaurants and specialist wine stores. This data is not well captured by Nielsen, so premium cider sales are under reported.

Another point highlighted by Nielsen was the importance of appellations, Regions of Origin and Quality Marks in growing premium pricing. These tools restrict geographic production areas, limiting supply, or provide quality or style assurance to consumers by setting consumer flavor expectations and easing choices in fragmented markets.

At CiderCon, Mintel also noted that 29% to 33% of consumers were looking for low sugar beverage options.[18]

17 Mintel presentation, Slide 2

18 Mintel presentation, Slides 1, 5 & 6 and Pacific Northwest Cider Association, Slide 11

The 2024 Weston's Cider Report highlighted a similar trend in the UK market. Figure 12 shows further segmentation of UK ciders. Over 60% of spend on crafted cider[19] came from the ABC1 social demographic customers. This segment is likely to hold professional or managerial positions in their careers and have completed higher education.[20] The ABC1 cohort made up a little over 15% of shoppers under 45 years old. The same cohort also bought around half the premium ciders and over 35% of shoppers under 45 years old bought these ciders.

Figure 12: UK cider market segmentation

Source: Weston's Cider Report 2024, Page 38

Quality price premiums

The trend for quality discussed at CiderCon was echoed in the Weston's Cider Report 2024 in the UK. It noted that 'premiumisation' had continued to be a key cider trend with drinkers trading up to more expensive products. The Weston's report noted that consumers were seeking out brands that echoed this quality, and apple brands that were delivering on this through heritage, provenance and the authentic nature of crafted and cared-for apple cider.[21] The report also stated that Off Trade[22] 'crafted cider' had had an incredibly strong year. While total cider had grown 2.8%, crafted cider grew 12.2% lifting its share of all cider from 19.4% to 21.2%. The same report also explained that Off Trade craft cider had a price premium over all ciders of 45%.[23]

Craft cider was also strong in the On Trade part of the UK market where it had grown from a 9.8% share of volume to 13.8%. Generally, in the UK On Trade draft premium and crafted ciders were selling at an 11% price premium and 37.6% premium respectively compared to mainstream apple ciders.[24]

19 Craft is defined by Westons as traditional and heritage products, Weston's Report 2024, Page 30
20 Weston's Cider Report 2024, Page 38
21 Weston's Cider Report 2024, page 14
22 'On trade' is sales in restaurants and bars etc, while 'Off trade' is sales through retail outlets, e.g. supermarkets or liquor stores
23 Weston's Cider Report 2024, Page 38
24 Ibid, Page 50

Growing cider consumers

The consumer research funded by the Pacific Northwest Cider Association for CiderCon 2024 highlighted the potential for cider makers to target 'Cider Curious' consumers. These consumers were defined as 'Selecting cider occasionally but not my go-to drink' as compared to 'Cider Enthusiasts' who usually drink cider or 'Cider Fans' who select cider about as much as they select other beverages. This research pointed to five key factors that could see more 'Cider Curious' customers buy more, including:

- Greater education about cider, apples and styles
- Tasting opportunities
- Variety of ciders is consistently available
- Greater confidence about the level of sweetness in ciders
- More recommendations from someone they trust.

Given the trends in cider markets identified earlier, and based on the research done by the Pacific Northwest Cider Association[25], the Roadmap team developed the following table of strategies to increase the number of premium cider drinkers.

Table 7: How to grow the number of premium cider drinkers

Issue	Solution
62% in survey: "If I knew a cider was not too sweet, I would be more apt to try it."	Clear labeling guidelines to tell customers how sweet a cider is.
63% in survey: "I would drink cider more often if I new more about it."	Consumer education and tasting events.
92% in survey: "would be open to trying cider if someone they trust recommended it."	Consumer education and training for beverage writers and food & beverage professionals.
80% in survey: "If there more more ciders available at my local bar, I would try cider more often."	Develop data/support to encourage bars and retailers to expand their range of ciders on offer. Often only stock 1 or 2 ciders and they are usually sweet.
"I tried cider once and I didn't like it."	Sweetness labeling, education, advice and availability of a wider range of ciders, will help ensure consumers like the first cider they try.
Opportunity for wineries to expand into cider as a great tasting lower alcohol offering.	Wineries can make a range of ciders in the style of their wines to appeal to existing customer base.

Source: CANZ analysis of presentation by Pacific Northwest Cider Association at CiderCon 2024

25 Pacific Northwest Cider Association, Slides 23 to 28

The Wine Market Council also included a list of what to avoid which are pertinent to developing a premium cider sector in New Zealand.[26] It counselled against:

- forgetting to tell people the basics (like is it dry or sweet)
- making labels obscure or hard to read
- intimidating customers with technical jargon
- making learning about it a chore
- 'dissing' entire styles or price segments
- focusing too much on the aficionado or 'geek' community or paying too much attention to sommeliers (unless they are the gatekeepers to whom you are selling).

26 Wine Market Council presentation, Slide 25

Cider Apples™
NEW ZEALAND

UK PREMIUM CIDERY CASE STUDY

Little Pomona

LITTLE POMONA
ORCHARD & CIDERY

THIS CASE STUDY WAS WRITTEN AND COMPILED BY

James and Susanna Forbes, owners and founders,
Little Pomona Ltd, Herefordshire, UK, 11 May 2024

Contents

Overview

Little Pomona is a premium, artisan producer of cider and perry located in Herefordshire, one of the UK's historic heartlands of apple and pear growing, and cider and perry making.

Owned and operated by husband and wife team James and Susanna Forbes, both ex-wine trade professionals, the company was formed in 2015 when they relocated from London.

This case study tells the story of how two people from the city, with no production experience, built a successful premium, artisan cidery from scratch, successfully taking these products to a national and international audience. It details steps taken, the importance of high aspirations, and the key role played by talented orchardists.

Opportunity knocks

The idea to establish a production business dated back to 2011 but took on momentum in 2012.

Wine was the obvious route for us as two highly experienced wine trade professionals – James, a senior buyer and marketeer (Oddbins, Wines of Argentina) and Susanna, a respected writer and editor (commissioner World Atlas of Wine, Wine International, and Imbibe magazines). However, a number of factors worked against this, primarily the costs associated with wine making and specifically good vineyard land.

Cider came to us out of the blue. A specialty in drinks and drinks tourism gave Susanna a chance to travel the land, visiting Herefordshire for both hops and apples. Here we were exposed to ciders that were different to those we would see on pub taps or bottle shop shelves in London in terms of both flavours and complexity.

A second and more cider specific writing assignment took us back to Herefordshire. On this trip we met several of best artisan producers, operating almost under the radar from their farms. Here we also walked orchards with the growers/makers, and tasted cider apples direct from the tree.

From a wine-lovers perspective, what puzzled us the most was how this fruit, apples with such character, intensity and personality, could end up as the simple homogenous sweet, sparkling, apple-ish and utterly forgettable drinks that were ubiquitous in the market.

What also struck us was how close, welcoming and collaborative this lesser-known drinks community was. Orchards. Fruit. Community. We were seduced by the story, the people and the quality, but was there a business opportunity here?

Taking a step back, cider has had its moments in the spotlight. As far back as the early 17th Century, cider and its production was the subject of serious scientific discourse amongst the landed gentry, as lectures and papers published at the Britain's leading scientific institution, the Royal Society, show.

We landed amid the decline of cider's 21st Century success. The mid-2000s saw the so-called 'Magners Effect'. Backed by some serious marketing money, impressive growth in the category was stoked not only for brand owners C&C but also cidermakers across the board, large and small.

With this boom came extensive plantings of cider fruit across the West Country of England, where this sort of tannin-rich fruit traditionally grew well. Sadly the boom was short lived and the decline rapid. But by this time the whole market had swung too far to one side: ciders served the same way (pint glasses over ice), made the same way, and pretty much all interchangeable and similar in taste.

In the vacuum created behind all this and inspired by a few makers who had stayed ambitious and were cherishing the fruit rather than simply chasing volumes, we saw an opportunity for an authentic, orchard-based, low-intervention cider company to carve out a niche in what overall is a significant drinks category.

James had already witnessed first-hand such developments in other drinks categories: Malt Whisky, from "brown and down" to iconic prestige. Gin from Gordons and Beefeater to a dizzying rainbow of thousands of brands and botanicals. As an award-winning beer writer, Susanna knew the craft beer world well. From backroom boozers to London billboards, flavour and character had taken over with the discerning drinker. Why could this not be possible with cider?

Positives:

- Apples are a native fruit to the British Isles. The growing conditions are perfect. There was an oversupply of fruit (thank you Magners Effect). Cider apples, bred and propagated specifically for the purposes of cider making are naturally disposed to produce interesting and attractive drinks with both longevity and food matching capabilities.
- Just like grapes and hops, there are many varieties of apple with individual characters, distinct personalities that can provide hooks for consumers. In the same way that New Zealand is synonymous with Sauvignon Blanc and Argentina owns Malbec, could certain apple varieties become synonymous with different regions here?
- Expertise in fruit growing and cider making is very high in the UK, and particularly so in the West Country areas.
- Orchards are beautiful to see and to spend time in. People genuinely connect with them on an emotional and intellectual level.
- Orchards have strong environmental credentials that include impressive carbon sequestration, lower input levels than say vineyards or hop yards, and they support incredible wildlife and plant diversity. Again, consumers can and do connect emotionally and intellectually with these things.
- The UK has a long history and culture of cider drinking. This alternative style of cider, whether termed craft cider, fine cider, artisan cider, then offers something for consumers to rediscover. Famously, British consumers are not shy in enjoying a drink.
- Artisan cider works with and supports the rural economy. In the UK, provenance and the environmental benefits of buying from local producers is increasingly front of mind with consumers.
- The flavours and alcohol levels in ciders made from traditional fruit and in a natural way work amazingly well with food.
- Alcohol levels in cider are naturally 40-50% lower than in wine. When consumed like wine, cider can deliver a similarly pleasant experience, with or without food, but with less alcohol being consumed. For the health-conscious consumer this is highly advantageous.
- Cider is naturally gluten-free.
- Property and land prices are considerably lower in the West Country of England than in other farming areas and there are tax incentives for cider production that do not exist for other categories of alcoholic drinks. It is possible to start a commercial cidery in the UK and make up to 7000 litres of cider per annum and not have to pay any excise duties. Proof of concept then is much more affordable and less risky than in other sectors.
- The drinks market in the UK is very large, and although the cider category is quite small it still sits at around £3 billion per annum, larger than the UK fishing industry or the UK music industry. Artisan cider only needs to carve out a small percentage of this to be successful.

Negatives:

- Cider is perceived often negatively at consumer and political level (although this is changing). Cheap, high strength white cider at one end and cheap, faulty, jug farmhouse cider at the other contribute to this perception.
- Cider has a low value perception amongst consumers and some gatekeepers because of this.
- Established patterns of cider drinking. Over the years cider has become simple and predictably sweet and sparkling, served on tap by the pint on tap, or in single serve bottle/can formats in the Off Trade.
- Cider has become inextricably linked with Summer drinking, more so than beer or wine.
- Many On Trade outlets in the UK are pub-chain owned or are “tied”, meaning managers do not have the flexibility to list what drinks they want.
- Distribution networks, unlike in other drinks categories in the UK, were non-existent at the time.
- The drinks market in the UK is crowded. Could we find shelf space? Could we find share of voice?

Beginning: 2014-2018

In our view the positives of cider far outnumbered the negatives. Of course, some of the negatives were serious. However we felt that in each case we could combat these negatives and demonstrate the merits and value of the ciders we would make. At this point project Little Pomona (unnamed at the time) came to life.

Followinga wine-led mentality, we decided that we wanted to have and control our own fruit source at least at the outset. We decided to focus on Herefordshire because of both its natural beauty, its status as a cider producing region but also for its strong community of cider makers. We also recognised that Herefordshire was an up-and-coming region for rural tourism.

After a two-year search, we sold our house in London when we found a property in northern Herefordshire to move to. Adjacent to that property, a five-acre cider apple orchard planted in 2001 to four different varieties.

We moved in late 2014, post-harvest. This gave us time to plan, and for a relatively small investment, convert an outbuilding into a small cidery, buy equipment for pressing, processing and harvest, and then begin work on orchard maintenance, all ready for the 2015 harvest.

Business Plan

In terms of cider making, again taking cues from wine, our mantra is/was that good cider is made in the orchard, not in the cidery. Further, and inspired by the natural wine movement, as well as the authentic cider producers we had met, we wanted to champion the fruit, the orchards and the seasons in which the fruit was grown, with as little intervention as possible.

In essence, rightly or wrongly, we made the decision to completely turn our backs on almost all aspects of both modern commercial cidermaking, and in many aspects, also traditional cider making.

To that end we decided to carve out a serious point of difference by focussing on fully fermented, technically dry ciders, made with true cider fruit, hand-picked, hand sorted, spontaneously fermented, with no chemical or mechanical interference. Cider made by intuition and with heart rather than by recipe. Cider made in the long term, for the long term, rather than for short term gain.

Our broad business plan was: to begin by making 3000 litres of cider in our first harvest; to sell half of this before the next harvest, and thereafter to double production each year until we reached 100,000 litres. Somewhere along the way we would find or build a new and bigger production facility, one to which we could attract visitors.

Further we decided that our brand should be placed at a premium level in the sector with a target RRP of £15 per 75cl bottle (to put this into context in 2015 it was easily possible to pick up 1.5 litres of cider for £5 total in a supermarket) and we pitched the ciders as drinks to share and to share over food.

All of these decisions were bold and ambitious, but we believed them necessary if we were to build, fund and sustain a successful artisan business. To make it work we also realised that we needed to bring consumers along with us on the journey, and to encourage them to engage with the brand.

Our first release, in April 2017 was a still, dry cider from the 2015 harvest called Feat of Clay. Its impact was immediate.

Firstly the logo, the branding and the 75cl wine bottle packing were strikingly different. In an era when almost every cider label was a tree, an apple and/or a tractor, and 500ml beer bottles the norm, Little Pomona was very different.

On the label we had a cuvée name – not just whether it was dry, medium or sweet. It had a vintage too. On the side panel of the label there was information about the Little Pomona philosophy as well as on how the cider was made, where the fruit came from and what varieties of apple had been used.

Inside the bottle too things were different. High acid, zero sugar and frankly, relatively extreme flavours of fermented cider apples. We're not saying everyone loved that first cider, some definitely did, but it served to make the point that not all ciders are or have to be the same.

We also backed all of this with a strong and engaging social media presence, particularly on the emerging platform of Instagram.

All of these things, so common in wine, made for a very innovative and impactful approach at the time. It is telling that all the new, serious cidermakers who have entered the market recently are following broadly the same approach.

On release we agreed to work with the newly formed Fine Cider Co, operating mainly in London (we work with them still today) and we began distributing ourselves within the county boundaries.

A series of releases followed, all similarly dry and still, all well received by trade and consumer, and our customer base grew to include online retailers and several small beer distributors. What could go wrong?

The Journey: 2019-2023

Quite a lot as it happens. By detailing some of the lessons learned, we hope we can spare other newcomers the pain.

With neither of us having direct experience of running a seasonal production business let alone low intervention cidermaking our initial timeline failed. Because we were using fruit with tannins, none of the ciders we set out to make in 2015 were ready to be bottled and presented to the market in 2016.

Equally, the general issue of making cider in this slow, time-heavy way uses up more space than we had imagined and thus our production forecasts had to be curtailed. In 2018 we had to ferment a portion of our cider in rented space off site.

To combat this and allow us to breathe and grow quickly, we formed a partnership with the Kirby family on nearby Brook House Farm. They had been inspired by the quality of the ciders and the vision we presented to them. A modern cidermaking facility next to a heritage orchard on the farm was built, partly funded by grants, our own money and a small investment from the Kirbys. The new cidery was completed in time for 2019 harvest.

A key step was the ability to significantly upgrade the equipment along with the new building. This was to enable us to produce more cider and, with more control over the fruit, better cider. This was particularly important for the varieties of fruit we press. With the apples and pears each having different tannin-loads and pressing qualities, the ability to vary the pressing cycles, or to macerate the pulp before pressing are two of the customised pressing techniques that could be applied. Equipment investment went into a new press, mill, pumps, sorting belts, stainless steel tanks, and over 100 oak barrels.

In 2019 and 2020 lost production ground was being regained, but the awful 2019 vintage dampened that.

Innovation

In 2019, to try and break into the pub and bar sector more effectively, we launched a kegged product called Root & Branch. Rather than compromise our cidermaking principles making via pasteurisation, back-sweetening and force carbonation, we began working with key-kegs (one way plastic kegs), which could be filled with fermenting cider allowing the cider to naturally condition in the keg. This had rarely if ever been done before commercially and it has become our version of cask fermented ale. This practice has been adopted by several other producers subsequently.

Also in 2019 we began the revival of an historic West Country drink called ciderkin. These drinks (like piquettes in wine) are made from the second pressing of the apples, the pressed pomace having been rehydrated with water and macerated overnight. The second pressing extracts the remaining sugars and flavour compounds but ultimately produces a lower alcohol drink, around 3-4% ABV. Called Hard Rain they are dry, tangy refreshing drinks that have gained a following in the natural wine world as well as hospitality and bottle shops.

Distribution & Sales

Our UK distribution network was strengthened in Scotland with a company called Re:Stalk and in London and the South-East, Bristol and West Midlands, via craft beer experts Pig's Ear.

This is a new type/style/approach to cider and customer education is paramount. Just as in the early days of wine in the UK and no doubt elsewhere, we knew that customers would understand better the craft that goes into artisan cider and thus the value that needs to be placed on it for it to be a sustainable business if they could meet the maker and see for themselves how the product is made. So we continued with our plans for a tasting room and began designing a direct to consumer website, ready for launch in spring 2020. By good fortune or otherwise when the Covid pandemic hit Europe in early 2020, we were in a good position to trade through it and did not have to furlough any staff.

As we came out of the pandemic properly in 2021 we signed an agreement with Les Caves de Pyrene to distribute our products throughout England and Wales and in particular to strengthen our presence in London. This was a vital move. Les Caves de Pyrene are significant distributors of fine and natural wine, ranking 10th in the UK with an annual turnover of £33m GBP and a 17-strong sales team. With them we are really able to push the agenda of cider with food, cider by the glass as a great drink in its own right, and cider by the glass as a lower abv alternative to wine.

The Range

Aside from the commercial aspects, although we are always learning, we have continued to focus on improving the quality and depth of the range that we offer without compromising our philosophy. Indeed, many might say that the quality of the range has remained consistent because we don't compromise. The range currently includes a diverse selection of ciders employing many different techniques of production, many varieties of fruit and many different styles.

Post pandemic and as we have grown, we increased our face-to-face interactions with customers and the trade. We now are regulars on the tasting circuit and at events held by our customers to showcase our products.

Fruit sourcing

In large part this growth has been possible through forging strong links with several key growers in the region. Each year we are getting fruit grown and picked for us to higher quality standards and with better ripeness levels. When fruit is the only ingredient we have, without achieving this we'd be stuck in a quality rut that would be hard to get out of.

Because of our reputation as being very quality driven, growers will come to us when they have interesting fruit. We do have exacting standards, but by sharing with growers the end product and explaining why we ask for things to be done in a certain way, we cultivate very strong relationships.

2024: Little Pomona In Numbers

TURNOVER
£250,000

PRODUCTION SINCE 2021
at 60-70,000 litres per annum

EMPLOYEES
3.6 plus seasonal/ casual workers

BOTTLED STOCK INVENTORY
ONGOING – around 25,000 litres

Sales Breakdown

- 20% Direct to consumer
- 15% Direct to business
- 25% Export
- 40% Via distributors

Export

Little Pomona exports to 11 countries:

Japan, Singapore, Belgium, Spain, USA, Norway, Canada, China, Sweden, Portugal and Germany.

Future: 2024 & beyond

Having built a business on fully fermented, dry ciders, we feel it is time now that we can credibly introduce some products with noticeable residual sugar. This will allow us to trade more easily with the traditional pub sector, and on the finer, bottled side, will open further possibilities in food matching, as we continue to champion the virtues of cider at the dining table.

The first of these products, Little Miracle, packaged in 20-litre bag-in-box format, has begun moving out to pubs across the UK and has been well received so far. We will follow in late June with Little Miracle Perry.

Sweeter bottled styles, using both the Normandy method of keeving and the Rural Method are in production and tasting good so far.

A diversification programme has also been started which will give us new opportunities but also provide add on-sales to existing customers:

- Distillation - done off-site by partner/contractors, with a view to making pommeau, eaux de vie, and vermouth/amaro.
- Vinegar – fine, barrel aged vinegar with premium retailers as the target market.

These things and more besides will strengthen and help to grow the profitability of the business.

Conclusions

From the release of our first product in spring 2017, in a relatively short space of time, Little Pomona has become a high profile, highly respected, category leading producer with a global audience. We've become an important source of change in the UK cider scene.

We continue to take a quality focussed approach to our business based entirely on what makes authentic, natural cider such a compelling drink – the apples grown here and the orchards in which they are grown.

Looking back now, it's been quite a ride. The initial linear growth was stunted, firstly by restricted space, and then, after solving that problem, by the rollercoaster of the pandemic and post-pandemic eras.

Recently the negative impacts of Brexit plus additional macroeconomic and geopolitical problems that have both affected consumer spending patterns have put a lot of pressure on all our business costs.

All of that said, demand for our cider has never decreased and, what we can say with certainty, is that the share of voice given to the craft cider sector, once so small and usually negative, is now much larger and almost always positive.

We're pleased to see the larger companies squabble over diminishing market share as they continue their race to the bottom. It makes what we and others are doing seem that much more desirable and valuable.

Little Pomona has reached a decision point: whether to increase production further, investing in expanded premises and staff, or to remain small, broaden its portfolio and concentrate on quality, whilst altering its distribution model to drive increased profit (i.e. less sales to distributors and more D2C and D2B); or to find a blend of the two models.

The landscape of UK cider has definitely and significantly changed in the years since the company was founded. There is now more positive coverage of the "craft cider" category in the media (print and online) than in living memory. There are also a whole swathe of new producers entering the community all over the UK, from the far north of Scotland to the tip of Cornwall. Broadly speaking these producers are taking a strong long-term approach, buying or converting land, planting trees, building facilities.

Of course competition is increasing, but it is our view that the ready availability of fine cider across the UK can only be helpful in establishing and embedding a culture of these drinks on shelves and drinks lists in the UK.

Little Pomona is a business with sound finances, no debt, a strong reputation, a high quality production facility, strong orchard links, an expansive customer base, strong distribution links, a strong inventory and a diverse product range. We operate in a sector in which interest and acceptance is growing from all corners of the UK market and abroad.

We feel confident that whatever direction we decide to take the business from here, we can continue to do so successfully. There has never been a better time to be a cider drinker or to become a cider maker. All we need is the right fruit

NZ Trade & Enterprise Market Selection Matrix for Cider

New Zealand Trade and Enterprise undertook a Market Selection Matrix investigation for CANZ. This used a desk-based methodology and combined indicators from a combination of publicly available development and trade indicators, and subscription databases. It included data for all available countries covering the following:

General metrics, including:

- Disposable income from Euromonitor,
- Disposable income per capita from Euromonitor,
- Compound average growth rate (CAGR) of disposable income per capita from Euromonitor, and
- Ease of doing business (Robinsons Country Intelligence Index rank from Georgia State University).

Cider market specific metrics for 2022:

- including the size of the cider and perry market in USD and in litres from Euromonitor,
- litres drunk per capita from Euromonitor
- CAGR of market size in litres (2017 to 2022) from Euromonitor,
- imports by country of HS code 220600[27] in USD from ITC Trademap,
- annual growth of imports in USD by country of HS code 220600 between 2018 and 2022 from ITC Trademap
- New cider product launches in 2020 to 2022 from Mintel's Global New Products Database (GNPD), and
- Tariffs applied on HS code 220600 (cider/perry) from the UN's International Trade Centre (ITC) market access map.

Cider consumer insights from GWI, a global market targeting company, which surveyed people about cider consumption. This data provides a time series ranging from 2019 to 2023. GWI measured whether those surveyed drink cider at least once a month, less than once a month and not at all. It also collected data on people's tendency to buy the premium version of products.

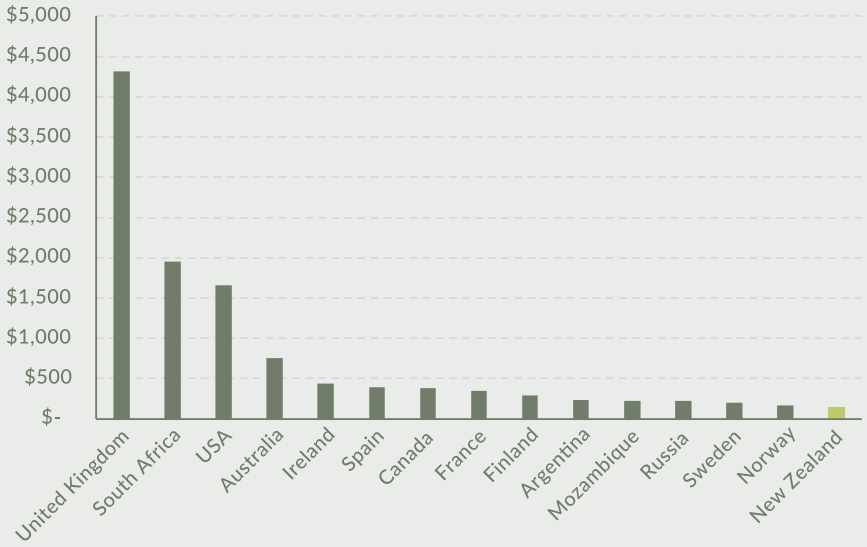
Some of this data provided useful insights about which export markets could hold the most potential for a developing premium cider industry in New Zealand. In this section, we look at Euromonitor's cider market specific metrics and data from ITC Trademap, Mintel's Global New Products Database (GNPD), ITC and GWI's consumer insights. The general Euromonitor metrics are of less significance in pointing to potential target markets. The data also tends to wrap other products into the cider data set for example, perry as well as mead, saké and the 'catch alls' of other fermented beverages and mixtures of fermented beverages. So, it should be treated as indicative rather than precise.

27 The ITC data captures cider, perry, mead, saké and other fermented beverages and mixtures of fermented beverages. See Data Sources tab in NZTE file 'Market Matrix MR_NZTE_Cider Apples_Aug2023'

Cider market specific metrics for 2022

Global markets sized by value

Figure 13: Top 15 Cider/Perry Markets by Value USD millions (2022)

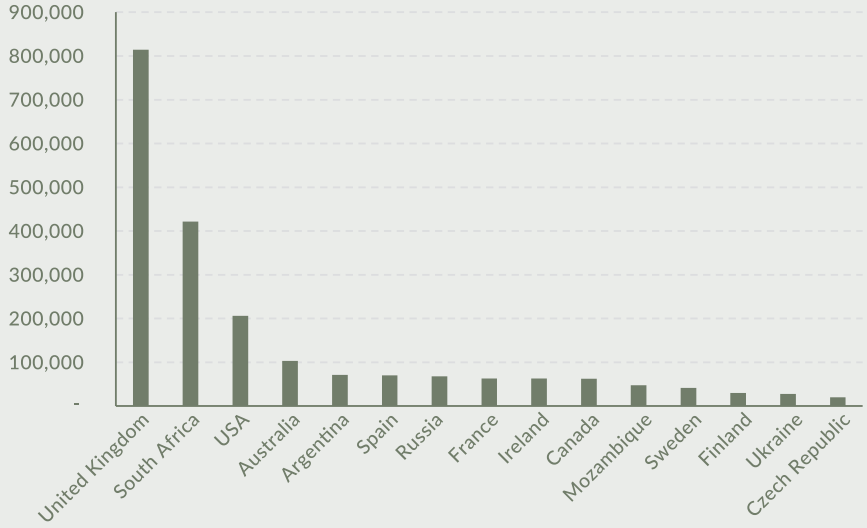


Source: NZTE, Euromonitor & CANZ analysis

Figure 13 clearly shows the significance of the UK market with $US 4.5 billion in value, more than twice the size of South Africa and the USA which are the second and third largest markets by value respectively. The USA market at $US 1.7 billion and Australia at $US 757 million are clearly potential large target markets for New Zealand premium cider. New Zealand appears in 15th place with $US 144 million.[28]

Global markets sized in litres

Figure 14: Top 15 Market Size of Cider/Perry volume in 000's of litres (2022)



Source: NZTE, Euromonitor & CANZ analysis

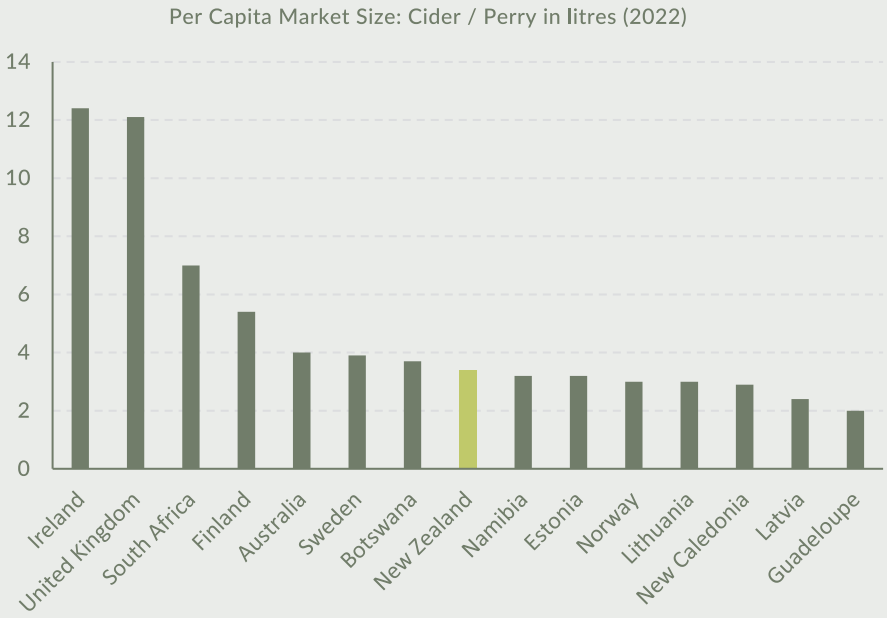
The picture changes when these markets are sized by volume. Figure 14 indicates that compared to Figure 13, New Zealand and Norway no longer make the top 15. They drop to 18th and 19th place respectively. This indicates that relative to their global peers, both countries have a higher average price for their cider/perry consumption (lower volume with higher prices). The opposite effect is also apparent with countries such as South Africa, Ukraine and the Czech Republic having cheaper average market prices compared to international peers.

28 As comparator and check on this value, total consumption of NZ wine and beer in the latest available 2019 Household Economic Survey from Statistics NZ was $724.2 million and $NZ 646.5 million respectively. NZ had exports of cider/perry (HS Code 220600) of $NZ 9.1 million in 2019 and 8.74m in 2022 (FOB). Imports CIF of the same HS Code 220600 were $NZ 9.3 million in 2019 and $NZ 12.7 million in 2022.

Global markets sized by litres drunk per capita

Cider consumption per capita provides another perspective on the demand characteristics in these markets. Figure 15 shows Ireland as the highest cider drinkers per capita at 12.4 litres followed closely by the UK at 12.1 litres. Consumption then drops significantly to South Africa at 7 litres per person. That is followed by Finland, Australia, Sweden then Botswana. New Zealand comes in with the eighth highest consumption per capita.

Figure 15: Per capita market size of cider/perry in litres (2022)

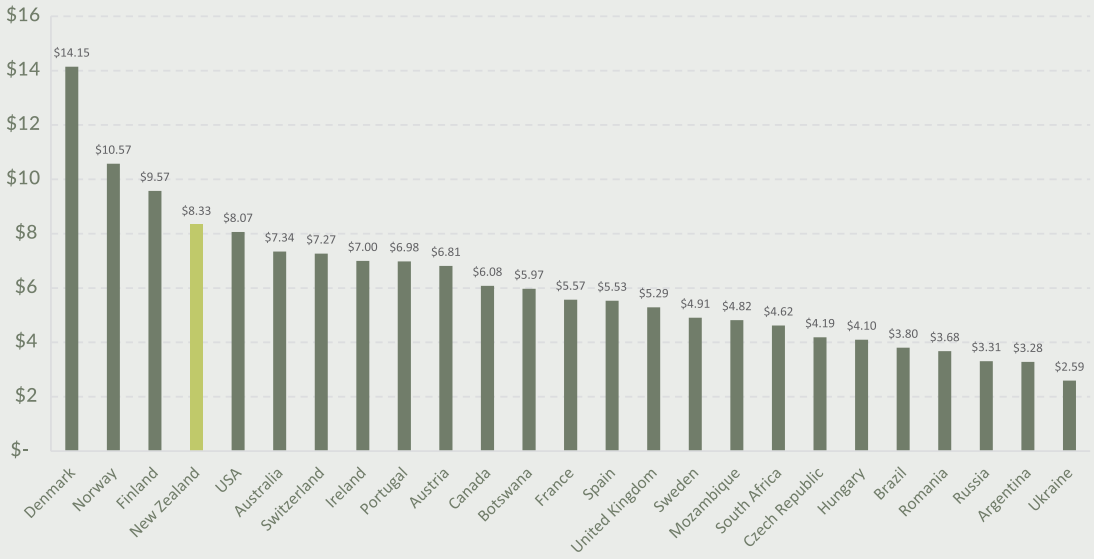


Source: NZTE, Euromonitor & CANZ analysis

The more expensive and cheaper cider markets are set out in Figure 16 where the average 2022 price in each market is mapped out. It was calculated from the value data shown in Figure 13 and the volume data shown in Figure 14.

Global markets sized by average price

Figure 16: Analysis of average cider price per market showing top 25 markets[29]



Source: NZTE, Euromonitor & CANZ analysis

Figure 16 shows the higher average priced markets compared to the lower average priced markets. Denmark had the highest average price in this country set, though it wasn't in the top 15 for either value (Figure 13) or volume (Figure 14). Norway, Finland and New Zealand had higher average prices along with the USA and Australia. Other higher prices were Western European countries and Canada with France, Spain and the UK in the mid-level average price group. As indicated in Figure 13 and Figure 14, countries such as South Africa, the Czech Republic and Ukraine had higher market volumes but lower values and consequently lower average prices relative to the other top cider/perry markets

The value ascribed to New Zealand by Euromonitor's data seems on the high side. $US8.33/litre is approximately $NZ13.88/litre[30]. This may indicate problems with the quality of Euromonitor's NZ data. However, whatever the reasons for the NZ statistics, the data for other countries appears to be generally representative of corroborating data for these markets. Figure 16 is the best information available to the team and is still likely to indicate at a high level, which markets could be good targets for New Zealand premium cider. Based on average price these are the Nordic and WesternsEuropean countries, USA and Canada and Australia.

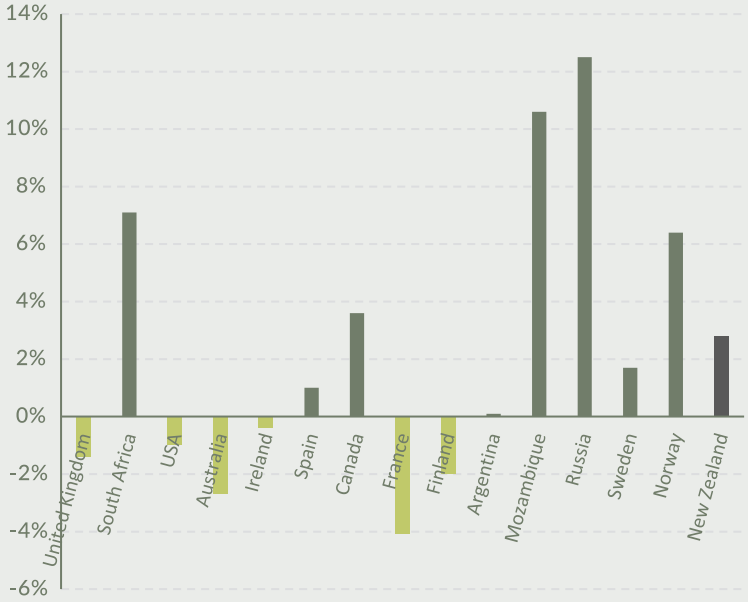
Asian countries don't appear in any of these three charts indicating relatively low total volumes and values compared to the countries discussed above. Ranked by volume of sales, Japan is in 48th place, Vietnam comes in at 59th place, Hong Kong at 60th, Taiwan at 61st and China in 63rd place. Even ranked on cider market value, Taiwan is in 34th, Singapore in 36th, place, Japan in 39th place, Hong Kong 50th and China 58th and Vietnam in 70th place.

29 Markets were first ranked based on volume in litres from the highest country to the lowest country, then the top 25 were reranked based on average price from highest to lowest ($US).

30 Based on $1 NZ buying 60c USD

Top 15 markets by value compound average growth rate

Figure 17: Compound Average Growth Rate - Value of Cider/Perry -2017 to 2022)-Top 15 Countries by Value in USD

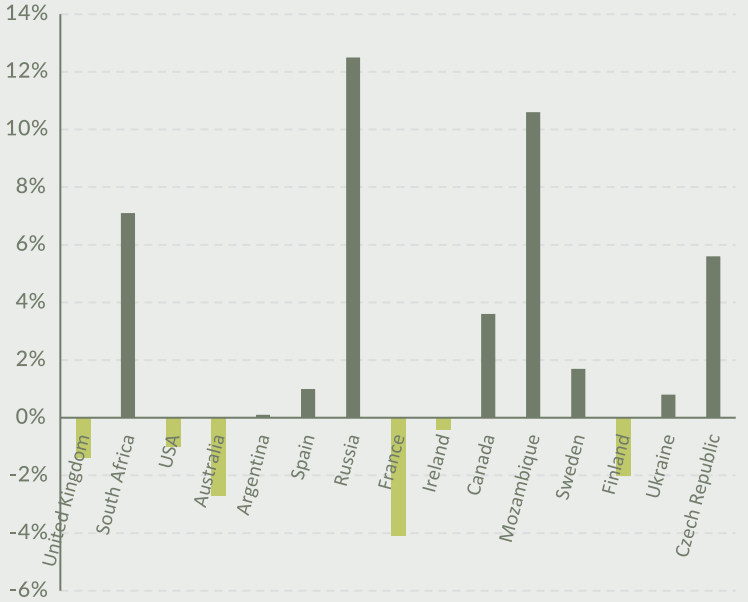


Source: NZTE, Euromonitor & CANZ analysis

Figure 17 illustrates the growth rates for 2022 of the top 15 markets by value. This qualifies the prospects for cider/perry in these markets, as a number of promising markets by total value have been declining in size over 2017 to 2022 including the UK, USA, Australia, France and Finland. In contrast, South Africa, Spain, Canada, Mozambique, Russia, Sweden, Norway and New Zealand grew. Figure 18 shows the growth rates in 2022 of the top 15 markets by volume. Volumes declined for UK, USA, Australia, Ireland, France and Finland.

Top 15 markets by volume compound average growth rate

Figure 18: Compound Average Growth Rate-– Value of Cider/Perry-(2017 to 2022- Top 15 Countries by Volume in USD

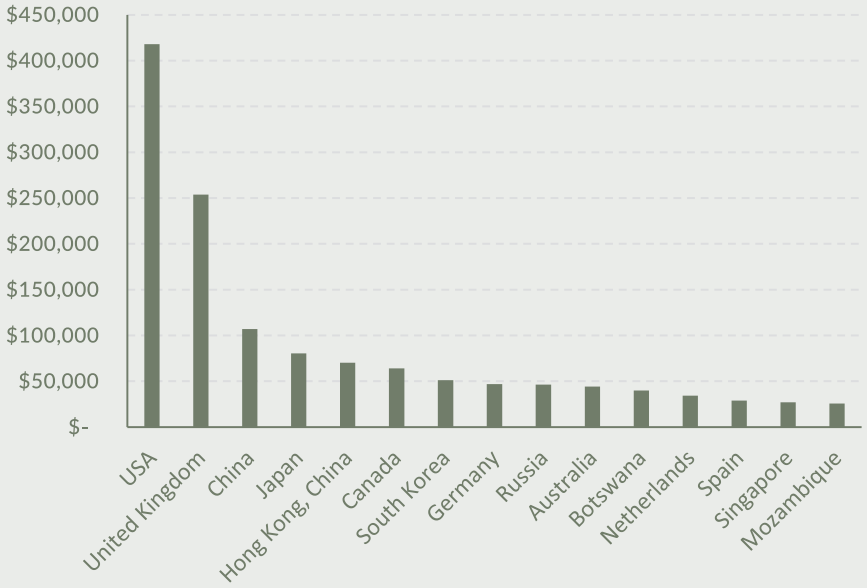


Source: NZTE, Euromonitor & CANZ analysis

Figure 19 ranks potential premium cider markets by their level of global imports of cider/perry (HS code 220600) by value in 000's USD in 2022. This shows that while the UK might be the largest market by value and volume (see Figure 13 and Figure 14), the USA is the largest importer of cider/perry at around $US418 million while the UK imported approximately $US254 million. The import data reveals that China, Japan and Hong Kong are significant in global imports of cider with around $US107 million, $US80 million and $US70 million respectively. Other potential target markets for New Zealand premium cider are Canada and Australia that import material amounts of cider/perry.

Top global importing markets

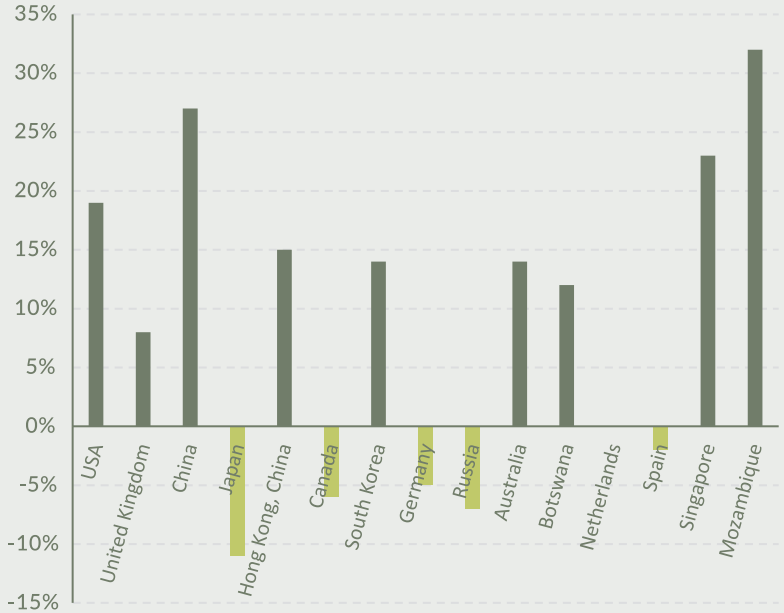
Figure 19: Global Imports of HS code 220600 value in 000's USD (2022)



Source: NZTE, ITC Trademap & CANZ analysis

Top global importing markets annual growth rates

Figure 20: Cider/perry (HS code 220600) Annual Growth of Imports (2018-2022) top 15 Cider importers by value USD



Source: NZTE, ITC Trademap & CANZ analysis

Figure 20 demonstrates the 2018 to 2022 annual growth rates in imports for the top 15 importing countries by value. The growing importers over this period were the USA, UK, and notably China, Hong Kong and Singapore. South Korea and Australia also increased their imports materially. Japan, Canada and Germany shrank their imports.

Top global markets in new product launches

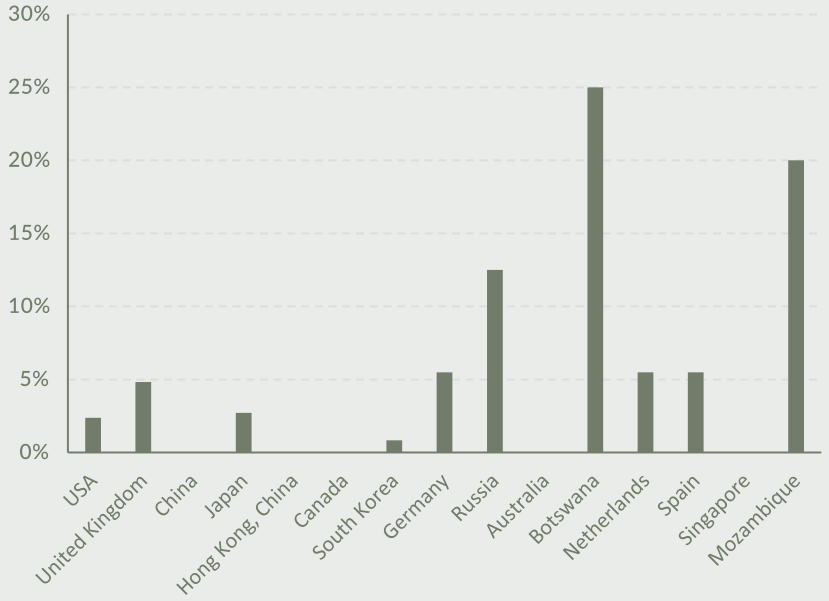
Figure 21: Cider - New Product Launches in three years (2020 2022)

Source: NZTE, Mintel's Global New Products Database (GNPD) & CANZ analysis

Figure 21 underlines the dominance of the UK market in value, volume as well as activity, as indicated by new product launches. Other markets with a comparatively high number of new product launches were France, Canada, Australia, Norway, Latvia, USA, Germany and Finland. Interestingly, in Asia there appears to be a lot of new product activity in Vietnam. New Zealand had 18 new product launches of cider between 2018 and 2022. Per head of population New Zealand, Norway, Latvia and Finland probably show a high fermentation of new products.

Tariff applied to cider exported from NZ to Top 15 importing countries

Figure 22: Tariff applied-– Cider/Perry HS code 220600 Exported from NZ to Top 15 importing countries (2022)



Source: NZTE, ITC Market Access Map & CANZ analysis

Figure 22 sets out the tariff rates that NZ exporters of cider faced in 2022. Most important potential markets have low tariff ; for example, the USA at 2.4% and UK at 4.8%[31]. Bettering those rates are China, Hong Kong, Canada, Australia and Singapore with zero rates. The EU members unsurprisingly all charge a 5.5% tariff. Cider imports to New Zealand face no tariff, (Annex I: New Zealand's Tariff Schedule)[32].

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31 Note that under the Free Trade Agreement between NZ and the UK, Page 29, Section 2B Tariff Schedule of the United Kingdom, Part 2B-1 Notes for Schedule of the United Kingdom, states "(a) customs duties on originating goods provided for in the items in staging category 'EIF' shall be eliminated entirely and these goods shall be duty-free on the date of entry into force of this Agreement". The NZ/UK free trade agreement entered into force on 31 May 2023. On page 251 the following cider products are all noted as being EIF. 2206.00.31, cider and perry, sparkling, base rate tariff 16.00 GBP/hl, 2206.00.51, cider and perry, not sparkling, in containers holding <= 2 litres, base rate tariff 6.40 GBP/hl and 2206.00.81, cider and perry, not sparkling, in containers holding > 2 litres, base rate tariff 4.80 GBP/hl.

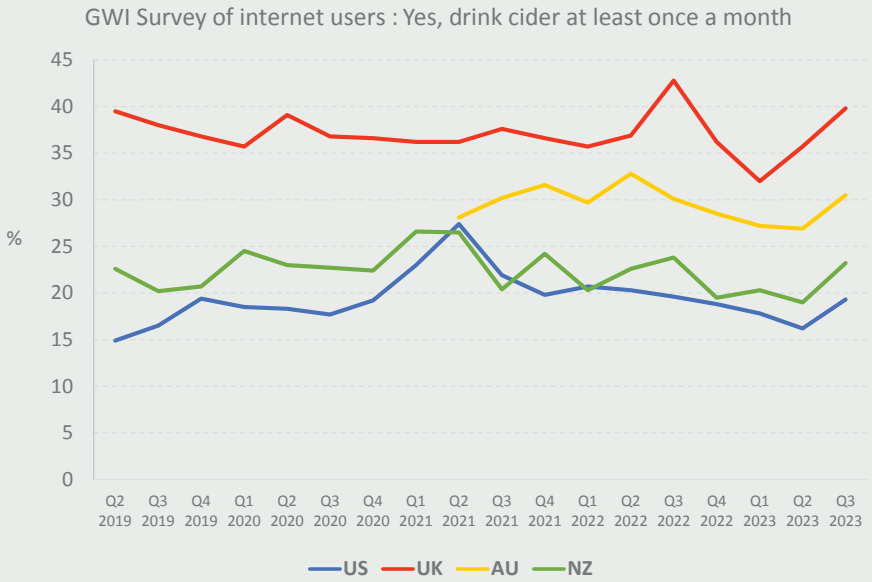
32 See https://www.mfat.govt.nz/assets/Trade-agreements/P4/P4_annex1-newzealand-tariff-schedule.pdf

Cider consumer insights from GWI – 2019 to 2023

Consumption of cider at least once a month

Figure 23 below tracks the internet users who answered that they drank cider at least once a month from GWI's survey in the US, UK, Australia and New Zealand between the second quarter of 2019 and the third quarter of 2023. This question was first introduced for internet users in Australia in Q2 2019. It is difficult to distinguish any clear trends from this data. However, cider is definitely more popular in the UK where over a third of respondents drank cider at least once a month. At least monthly cider drinking is similar in the US and New Zealand with around 20% of respondents. The shorter data set for Australia could indicate a growth trend and about 30% drinking cider at least once a month. Figure 23 could indicate some increasing popularity for cider although it is too early to tell from the final third quarter of 2023 values and could indicate survey design challenges rather than increased demand.

Figure 23: GWI Survey of internet users % who answered Yes, they drink cider at least once a month

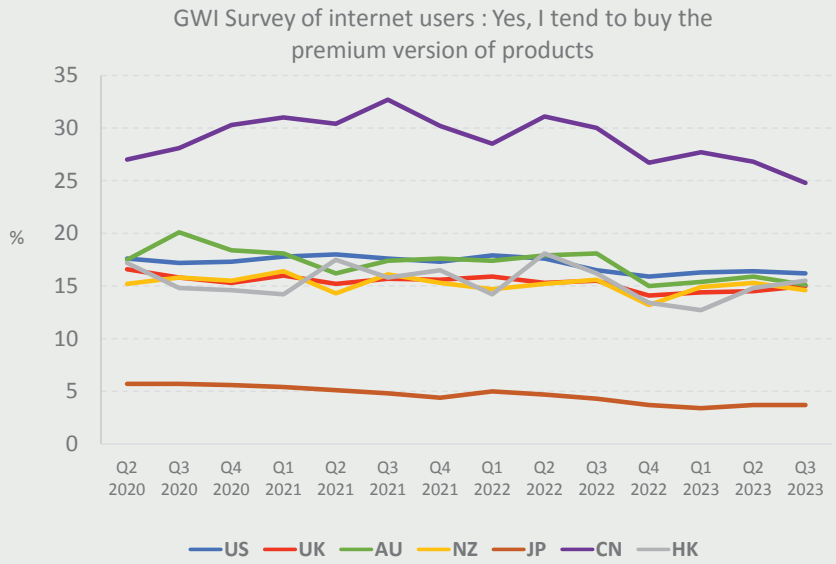


Source: NZTE, GWI & CANZ analysis

Tendency to buy premium products

Figure 24 provides data on the tendency of internet users in GWI's survey to buy the premium version of products in general. There is a big block of countries (USA, UK, Australia, New Zealand and Hong Kong) where at the start of the period in the second quarter of 2020 around 17% of respondents tended to buy premium products. That drifted down to around 15% of respondents by the third quarter of 2023. This data has, for the most part, had a declining trend for Chinese respondents from the third quarter of 2021 as well perhaps reflecting tougher economic conditions in many countries over recent quarters.

Figure 24: GWI Survey of internet users: Yes, I tend to buy the premium version of products



Source: NZTE, GWI & CANZ analysis

Possible inferences from NZTE Market Matrix data

Australia

The NZTE Market Matrix data could support the value of focusing on Australia. It is close to New Zealand and would therefore face lower transport costs for liquid exports than other markets. It was the fourth largest global market in both value and volume of cider produced and fifth highest market for cider consumption per capita. Australia had the fifth highest average price based on the approach taken in Figure 16. The compound average decline of 2.7% in value and volume between 2017 and 2022 were less encouraging but this decline in total market indicators is common across many of the more developed markets, for example, UK, USA, Ireland and France. Australia ranked 10th in the world for its level of imports of cider/perry by value in 2022 and its imports grew by 14% a year between 2018 – 2022. The level of ferment in the Australian market was also high with 60 new cider product launches in the three years from 2020 to 2022. The zero-tariff rating for imports of cider from New Zealand is also an attraction for New Zealand cider exporters though its excise taxes on cider may be higher. GWI's consumer data indicated a growing popularity of cider drinking amongst Australians. This may be more consumers drinking higher quality and more imported ciders while total production is slipping.

Nordics (Denmark, Sweden, Norway & Finland)

Sweden and Norway ranked in the top 15 cider/perry markets by value in 2022. These markets also experienced market growth in value between 2017 and 2022 of 1.7% and 6.4% respectively. Two Nordic countries were also in the top 15 by volume – Sweden and Finland. Growth in market volume was more mixed with Sweden growing 1.7% again, but Finland declining by 2% over the same period. Finland, Sweden and Norway were the[h]fourth,[h]sixth and 11th highest consumers of cider and perry per capita. Our analysis of the top 25 markets by price in Figure 16 showed that the top three average cider prices were Denmark, Norway and Finland respectively and Sweden was in 16th place. But this might be explained by the comparatively high excise taxes in these markets. No Nordic country made it into the top 15 importing countries by value. However, in new product launches in the period 2020–2022 ranked by number Norway had 44 and Sweden 26 indicating significant activity particularly in Norway given its much smaller market size. Encouragingly, Norway is listed as zero rating its tariffs against imports of cider fromZNew Zealand. The other thre3, Denmark, Sweden and Finland have tariff rates of 5.48%. Overall, given its high average cider pricing and zero tariff, it would appear that Norway in particular could have potential as an export market for premium New Zealand ciders. However, distance to market would likely mean that only high value high quality ciders would provide enough margin to make this economic. The other Nordic countries could well offer similar niches for similar New Zealand ciders.

USA

The USA was the[d]third largest market by value and volume for cider/perry in 2022 and had the fourth highest average price. However, the litres per capita drunk in the USA is only 600mls which puts it in 53rd place amongst all countries. This low level of consumption compared to other markets suggests that cider is popular only in some regions in the USA. In addition, both value and volume in the US market declined by 1% CAGR between 2017 and 2022.

While average consumption is low and the overall market is shrinking, the USA had the highest value of cider/perry imports in 2022. Moreover, the annual growth rate of imports between 2018 and 2022 was 18%. Of the top 15 cider importing countries, this growth rate was only beaten by China, Singapore and Mozambique. The US market recorded 39 new cider product launches between 2020 and 2022; the[h]eighth largest number of these. The tariff imposed on New Zealand cider exports to the USA is also quite low at 2.4%, amongst the top cider importers by value in 2022.

UK

The UK market is the behemoth amongst all global markets. At $US4.3 billion its value of cider/perry sold in 2022 was more than double the next largest – South Africa. At 814,366,000 litres the UK was still almost double the next largest, which was South Africa again. Mintel's Global New Products Database recorded the UK's new cider product launches in the three years from 2020 to 2022 at 163, which was more than double France in second place at 76. The UK was pipped at the post by Ireland in litres drunk per capita with the Irish drinking 12.4 while the UK is consuming 12.1 litres on average. However, average price per litre, calculated from value divided by volume, puts the UK in 15th place at US$5.29 per litre. One factor that may explain this comparatively lower price per litre is that the UK has lower minimum apple juice content rules than many other countries at 30%.

The size of the UK's cider market, in both value and volume, shrank at a compound average decline of 1.4% per annum between 2017 and 2022. More encouraging from a New Zealand exporter's point of view is that the UK is the second largest importer of cider/perry after the USA with the UK importing US$253.7 million. Furthermore, these imports have grown 8% per year between 2018 – 2022. Unfortunately, the UK maintained a tariff rate of 4.8% on imported cider and perry from NZ in 2022. Its excise tax rate may also be higher than New Zealand's rate. While the overall data on the UK indicates a declining market with increasing exports, the UK has strong growth in higher value premium and craft ciders as described in the section titled 'Findings from CiderCon and Weston's Cider Report'.

China, Hong Kong and North East Asia

China and Hong Kong don't show up in the analysis of the top 15 cider markets by size. China's total 2022 domestic market size was estimated by Euromonitor at only US$9.5 million (1,056,000 litres) with Hong Kong only slightly larger. However, China was the third largest importer of cider/perry in 2022 with US$107 million (after the USA and UK). So, the domestic market average price is estimated at US$/9 per litre. This is only topped by Denmark, Norway and Finland in the analysis of the average cider price per market based on top 25 cider producing markets. Hong Kong was 5th largest importer of cider/perry importing US$70.2 million with Japan in 4th place importing US$80.3 million. It is also notable that South Korea was 7th largest importer of cider/perry, importing US$51.3 million in 2022.

China's annual growth in imports between 2018 and 2022 by value was one of the highest, at 27% with Hong Kong growing over the same period by 15% per annum. Another very positive factor for those planning to export cider from New Zealand is that there were no tariffs applied to cider/perry by China and Hong Kong as recorded by the UN's International Trade Centre (ITC) market access map. Judging by excise rates on wine in Hong Kong, these could be more accommodating for cider than many other markets.

Caveats on NZTE Market Matrix

The NZTE Market Matrix information was useful at broad brush level. However, as mentioned earlier in this section, data on cider is quite aggregated, often capturing other beverages like perry. It is therefore not possible to investigate the trends going on within markets, for example, at the segment level or between ciders of different types. The attendance by two of the Roadmap team at the CiderCon conference in Portland, Oregon in January 2024 provided a great opportunity to lift the bonnet on what is going on within some key potential markets.

Accelerated Delivery of New Cider Apple Cultivars

The aim of this section of the Roadmap is to confirm opportunities to further accelerate development and commercialisation of new cider apple cultivars.

Background

The opportunity for New Zealand fruit producers and cidermakers is dependent on having cider apple varieties which can support the development of Distinctive Brand New Zealand ciders as Sauvignon Blanc has for the wine industry. Dessert apples for fresh consumption are not suited to produce premium ciders in the same way as eating grapes do not produce high quality wines. Premium cider makers around the world use specialty cider apple varieties with unique juice chemistry suited for cider making. In New Zealand, most cider in made from juice of reject dessert apples augmented by the addition of acids, sugar and tannins. Specialist cider apple varieties from traditional cider regions in UK, France and Spain represent less than one percent of apple plantings in New Zealand. These are generally grown in orchards belonging to premium cideries.

Premium cider styles are strongly regional, reflecting the characteristics of the local apple varieties used, made and mostly consumed within the region. UK ciders are largely produced in the Southwest and are generally characterised as highly tannic with complex aromatics. French ciders from Normandy tend to be very sweet with low alcohol and moderate tannins. Spanish ciders from Asturias tend to be highly acidic and tannic and are an acquired taste. These varieties have been found to be poorly adapted to growing conditions in other regions. In the USA, premium ciders have high acidity as culinary apple varieties are used as a proxy for traditional tannic cider varieties. Traditional varieties from Europe lack cold winter tolerance, low yields, and susceptibility to the bacterial disease Fire-blight, do not adapt well to US conditions. In New Zealand, cider apple growers interviewed for the Roadmap reported yields from below 10 and up to 20 tonnes per hectare compared with 80 to 100 tonnes for modern dessert apples. Interviews by CANZ with cidermakers in UK, France and USA, has identified a trend towards introducing varieties better suited to the changing demographics of their consumers. The insignificant cider apple planting in New Zealand and the developing trends in cider preferences internationally creates the opportunity for development of a distinctive New Zealand premium cider industry based on new cider apple varieties developed locally which will excite consumers globally.

Consumer-driven approach to new cider apple variety development

Consumer research, although not complete, can already provide important pointers to breeders and cider makers on trends in cider buyer behaviours. Cider apple breeders need to utilise this understanding in designing their breeding plans. CANZ, assisted by funding from AGMARDT and MPI, is further developing an understanding of the essential characteristics required in apple varieties which will produce premium ciders with wide appeal to consumers internationally. Further research into consumer buying behaviour and preferences will be essential to gain more certainty and inform breeding strategies.

Breeding unique cultivars for premium cider is a relatively long-term activity. It requires access to genetics which produce moderate to high sugars, aromas, moderate acidity, and a range of polyphenols which provide the textural mouth feel qualities required by premium ciders. The technology for measuring sugars and acidity is well established and easy to incorporate in selection. A better understanding of which polyphenols are important for the desired types of texture in premium cider and the development of a rapid low-cost screen for these polyphenols would be of great value in the selection of potential cider apples. However, due to the complex chemistry of fermentation, it is not possible to predict the aromatic and textural quality of cider an apple will produce based on its chemical composition and actual fermentation (cider making) is required. High throughput micro fermentation capability is a necessary part of the evaluation.

There are currently two cider apple breeding programmes in New Zealand, one belonging to a cider company and the second to Cider Apples New Zealand (CANZ). These are two of only four programmes in the world we know of dedicated to breeding cider apples. There is a small collaborative programme in France between IFPC and INRAE, and one in Asturias, Spain. Both are focused on breeding improved types of local cider varieties. Other breeding programmes in Europe and USA select cider apples as an adjunct to their dessert breeding programmes. There are several programmes screening existing varieties and wilding apples for cider potential, notably at Cornell University and Washington State University. Both use micro fermentation techniques for the initial screen. The CANZ programme commenced in 2022 and is potentially the largest cider apple breeding initiative globally. CANZ anticipate having varieties available from 2028 onwards due to its advanced and innovative population and selection management protocols with support from AGMARDT. CANZ has also developed a high throughput micro fermentation system which allows it to efficiently and economically screen large numbers of candidate selections.

Access to suitable genetics

The New Zealand Institute for Plant and Food Research (PFR) has a well-established apple breeding programme for dessert eating apples historically funded by Government and industry. The programme currently has no focus or mandate for breeding cider varieties. The PFR genetics programme is focused on supporting its dessert apple breeding programme and genomics research. PFR maintains the Apple Collection of National Significance on behalf of the nation with funding from MPI. There is a need to clarify the availability of germplasm held by PFR in the Apple Collection of National Significance. PFR is currently not making any material from this collection available to the private sector on the grounds it is reviewing the legal status of doing so. This review has been in place for many years and PFR has not provided any advice as to when it will be completed. Of concern also is PFR's propriety views on the apple germplasm it has acquired as part of its historical Government funded apple genetics research programmes. Some of the accessions, based on their origin, have potential for use in the breeding of cider apples. There is a valid argument for this material being made available to private cider apple breeders.

Fast tracking cider apple varieties through screening dessert apple breeding programmes

CANZ has initiated a programme with Prevar, PFR and two private NZ breeding programmes to evaluate material using protocols and innovative technology it has developed to identify apples which will produce unique premium ciders based on its inhouse understanding of consumer purchasing drivers and preference trends. This is already yielding results with several candidates identified. Cider from one selection has been used locally and internationally by CANZ to test their understanding of the cider styles which will differentiate premium NZ ciders in the minds of consumers.

New technologies

There is good potential to accelerate the breeding of premium cider apples further through the adoption of genomic technologies for faster and more accurate screening, and the use of genetic modification technologies to introduce genes of interest into a high-performance background. Further research is needed on the biochemistry of fermentation to identify the contribution of the numerous compounds in apple juice to the flavour and texture of cider, gene mapping, identification of genetic mechanisms controlling important traits and genetic markers for those traits. The research needed to develop practical applications for these technologies for use in cider apple breeding will be complex, multidisciplinary and expensive. Research capability in these technologies exists to some extent in New Zealand research institutions such as CRIs and Universities but also would involve international collaborations. This research typically requires government research grants or public/private research partnerships.

IP protection and commercialisation of cider apple varieties

Protecting intellectual property is an essential mechanism for safeguarding the interests of variety owners and premium cider makers/marketers. Ownership and exclusivity are powerful drivers of investment in development and promotion. By using IP rights breeders owners and those involved in cider making, distribution and marketing can build, protect and maintain consumer recognition and loyalty to Brand NZ. Care will need to be exercised by stakeholders in the industry to ensure royalties are set to recognise the ability of a developing premium cider industry to sustain the cost.

Regulatory Scan

The aim of this section of the Roadmap is to conduct a scan of regulatory issues with the help of the Fruit Wine and Cider Association (FWCMA) to identify regulatory features, which could affect this programme.

What is cider?

Cider is made when yeast ferments sugar in the juice and converts it to alcohol. The starting point can either be apple/pear juice or concentrate. Sugar and water can be added to reach the desired alcohol level. This means that the initial apple/pear fermented juice content can be significantly diluted. Fruit juice and juice concentrate can also be added post fermentation to increase sweetness, provide a rounder mouthfeel and to lower the alcohol level. As a result, significant amounts of sugars can be in the cider without the need to declare it.

Regulation and Regulators

Alcoholic beverages sold in New Zealand, including cider, face regulatory requirements from Food Standard Australia & New Zealand (FSANZ), Ministry for Primary Industries (MPI) and NZ Customs in the form of tax. Legislation that influences consumer demand, such as minimum age requirements for purchasing alcohol, blood alcohol limits for drivers and guidelines for cider retailers (including licensing), also affects cider production.

FSANZ

All food sold in Australia and New Zealand must comply with food standards set out in the Australia New Zealand Food Standards Code. New Zealand (FSANZ) is an independent statutory agency established by the Food Standards Australia New Zealand Act 1991 (FSANZ Act). It regulates the production and labelling of cider in Australia and New Zealand. FSANZ Codes outline ingredients permitted in alcoholic beverages, and various standards, including the labeling guidelines, which must detail the product's number of standard drinks, alcohol content and pregnancy warning labels.

Ministry for Primary Industries (MPI)

MPI administer the Wine Act 2003. This Act covers making grape or non-grape wine (cider, perry, vegetable/fruit wine or mead), and ingredients. Grape Wine and Non-Grape Wine (i.e. cider) businesses need to register a Wine Standards Management Plan (WSMP), or meet MPI National Programme 3 for food safety rules (if not exporting). This is designed to help producers meet their obligations under the Wine Act. WSMPs and National Programme 3 need to be verified/ audited and registered with MPI. Small winemakers (those who make less than 20,000 litres of wine over two years) are exempted from having a verified WSMP but exempt wine makers cannot export from New Zealand.

NZ Customs

If you make, sell or give away alcohol in New Zealand, NZ Customs charge excise duty and a Health Promotion Agency (HPA) levy on those products. You can only do so from a licensed area (NZ Customs-controlled areas) where those products are made and stored. The tax is collected on all alcohol (≥1.15% ABV) manufactured in, or imported into New Zealand. Exporters of alcohol pay the excise relevant to the country they export to. Every year, at the start of July, the alcohol excise rates are adjusted for inflation.

Production and Composition rules

Under Standard 2.7.3 of the FSANZ Code, cider is a fruit wine prepared from the juice or must of apples or apples and pears.

2.7.3—2 Definitions

Cider means the fruit wine prepared from the juice or must of apples or apples and pears and with no more than 25% of the juice or must of pears.

Fruit wine or vegetable wine means:

(a) a food that:

(i) is prepared from the complete or partial fermentation of fruit, vegetable, grains, cereals or any combination or preparation of those foods; and

(ii) is not a wine or a wine product; or

(b) such a food with the with the addition of any of the following during production:

(i) fruit juice and fruit juice products;

(ii) vegetable juice and vegetable juice products;

(iii) sugars;

(iv) honey;

(v) spices;

(vi) alcohol;

(vii) water.

Fruit wine product or vegetable wine product means a food containing no less than 700 mL/L of fruit wine, or vegetable wine, or both fruit and vegetable wine, which has been formulated, processed, modified or mixed with other foods such that it is not a fruit wine or vegetable wine.

Meanwhile wine has a much clearer definition as follows:

2.7.4—2 Definitions

Note In this Code (see section 1.1.2—3):

wine means:

(a) a food that is the product of the complete or partial fermentation of fresh grapes, or a mixture of that product and products derived solely from grapes; or

(b) such a food with any of the following added during production:

(i) grape juice and grape juice products;

(ii) sugars;

(iii) brandy or other spirit;

(iv) water that is necessary to incorporate any substance permitted for use as a food additive or a processing aid.

2.7.4—3 Requirement for food sold as wine

A food that is sold as wine must consist of wine.

In 2023 the Fruit Wine and Cider Makers Association of New Zealand (FWCMA) and Cider Australia approached FSANZ requesting a change to the Code to strengthen the compositional requirements for cider by prescribing that cider and perry may contain no less than 50% by weight of fruit juice and fruit juice products in the finished product[33]. This compares to major cider producing countries which have a minimum juice content requirements e.g. Germany 95%; Spain 100% (natural) and 50% (sparkling); USA 50%; France 50%; UK 35%; Denmark 15%; and Sweden 15%. Definitions were also sought for products lacking in the Code such as methode traditionelle cider, fortified cider, apple and/or pear spirit, and apple and/or pear brandy.

33 FSANZ noted at the time that rules for wine had kept up today while rules for cider had not changed in 40 years.

FWCMA's purpose was to:

- provide adequate information to enable consumers to make informed choices,
- prevent misleading or deceptive conduct by producers,
- ensure greater consistency with wine, and
- promote consistency between domestic and international food standards.

In FWCMA's view, FSANZ do not proactively make changes to the Code, even where it is clear the Code is not meeting the needs of industry or consumers. It believes that the application process for change is costly and takes considerable time. Furthermore, FWCMA points out that there is no particular process for FSANZ to consider international developments in cider regulation.

Tax/Excise

There are two corrective taxes on alcohol products: alcohol excise and the Health Promotion Agency (HPA) levy. Both are charged on alcohol manufactured in, or imported into, New Zealand; and both are collected by the New Zealand Customs Service. Revenue from alcohol excise is part of Government revenue while revenue from the HPA levy funds the HPA. Alcohol excise rates tends to increase in line with inflation. This tax varies by product type and alcohol volume with some rates applied on a per litre basis, and others applied on a per litre of alcohol. Because of this, rates vary a lot across different products and the different effective rates distort production and therefore consumption decisions, for example, the same quantity of beer and cider face the same excise tax at 6% ABV but at 7% ABV cider is taxed more than beer by 14.4%. At 8% ABV excise tax is the same for both, while at 9% ABV beer is taxed 12.3% more than cider. This appears to be a distortion that is not driven by ameliorating the harm of alcohol.

The Future of Tax report of the New Zealand Tax Working Group[34] stated **"it is difficult to understand why the rates of excise per litre of alcohol should vary so much across different products. A case could be made for applying a consistent rate per litre of alcohol across all products – which would increase rates for some products and decrease them for others."** The Working Group recommended that the Government review the rate structure with the intention of rationalising and simplifying it.

Problems

No standards limiting the amount of water or sugar that can be added to cider

Unlike wine, there are no standards limiting the amount of water, sugar and other approved ingredients that can be added to cider. Nor are there any guidelines specifying the final content of fresh apple/pear juice or concentrate in cider/perry. As a result, various types of products are available in New Zealand, ranging from products made from 100% apple juice to pre-mix products with added water, sugar and/or fruit juice and labeled as 'cider'. In contrast to cider, wine must be made out of 100% grape juice [35].

No clear differentiation between cider and fruit wine for consumers

There is also no means to differentiate between cider and fruit wine. For example: a cider containing 100% apple juice then has concentrated raspberry juice added to it. Based on the ingredients and production method, the drink now meets the definition of 'fruit wine', not cider because of the added raspberry juice. But, this drink can be called 'Cider with raspberry' as the Code doesn't say that you have to use 'fruit wine' in the name. FWCMA states that the onus is on the producer to comply as FSANZ does not police compliance. FWCMA assumes the labeling requirements are audited correctly under the Wine Standards Management Plan (WSMP) of the Wine Act 2003.

34 https://taxworkinggroup.govt.nz/ 20 September 2018

35 See Standard 2.7.4 of the Code

Currently there is no sugar content labeling on cider and other alcoholic drinks

Whilst FSANZ currently exempts alcoholic drinks from displaying nutritional information panels, including energy (kilojoule/kJ) or carbohydrates (sugar and added sugar), they are investigating sugar labelling on alcohol: Proposal P1059: Energy labelling on alcoholic beverages and P1049: Carbohydrate and sugar claims on alcoholic beverages. These projects focus on amending the Code to require the declaration of energy (kJ) content information, in a prescribed format, on the label of packaged alcoholic beverages. This also seeks to clarify requirements in the Australia New Zealand Food Standards Code about claims concerning carbohydrate content and the components of carbohydrate (such as sugar) for food that contains more than 1.15% ABV, including alcoholic beverages.

Like wine, cider can be dry to very sweet. However, wine follows an international standard for sweetness levels e.g., <4g/L is dry and > 45g/L is sweet. Cider does not have a similar standard definition, instead standards are voluntary with no link to the FSANZ code. Therefore, a cider can be labeled "Extra Dry" but contain 45g/L sugar. However, FSANZ specifies that if a food is low sugar, it must be under 2.2g/L for all foods. Individual industry associations voluntarily determine their own definition of sweetness levels, usually through running competitions, where different sweetness levels are used to define competition categories. There are discrepancies across the different industry bodies and with wine, and this causes consumer confusion.

Recommendations

Consumers lack good information to help them make purchasing decisions under current regulations for cider and, to an extent, other alcoholic beverages. Some options which could improve this are:

- Follow the example of the regulation of wine by amending Standard 2.7.3 of the FSANZ Code to create a new definition for "fine", "craft" or "premium" cider. This would mean that this type of cider would be made from 100% apple juice and apple juice products.
- Existing products could remain able to call their products 'cider', for example, 'cider with raspberry' as they do now.
- Introducing consistent labelling about, for example, sugar content (similar to wines).

In addition, remove the distortion in the current excise tax rate on cider compared to beer by aligning the excise rates at 'containing more than 2.5% volume per litre of alcohol' with the change of rate for ciders, spirits, perry and mead 'containing more than 6% volume per litre but not more than 9% volume per litre.'

These changes would allow the opportunity for a new premium cider category to grow, retain the existing options for those wishing to continue to sell other types of cider and fruit wines, while reducing the level of confusion that exists now as well as providing better information to guide consumer purchasing choices.

If New Zealand is to be successful developing a premium cider category and growing it into a major export industry, we must have a regulatory framework that supports that goal and assures global consumers that our beverage is made to high standards that justify its value.

Stakeholders' views

The aim of this section of the Roadmap is to complete discussions with interested cideries and landowners including Māori/iwi groups about customer needs, cultivars, and production of premium cider apples.

Summary of stakeholder discussions

Key points from stakeholder meetings

The Roadmap team has more detailed records of each of the following stakeholder meetings.

Plant & Food Research

CANZ has met with Plant & Food Research to pursue analysis of the Outcome of the third workstream "Accelerated delivery of new cider apple cultivars – Confirm opportunities to further accelerate development and commercialisation of new cider apple cultivars." CANZ was seeking a summary of the genetics in New Zealand that were relevant for cider and were available for use, from both PFR and Prevar to be included in the Roadmap work. The desirable traits for cider production and commercialisation were discussed along with future areas of research beyond the Roadmapping project. CANZ and PFR were contracting for a summary of available apple genetics in New Zealand, their availability, commercial assessment and for breeding. The contract would also cover a review of breeding technology and its potential for use in accelerating delivery of new cider cultivars.

Craigmore

CANZ met with the Horticulture GM of Craigmore. The key points were that Craigmore currently has a mandate to invest significantly in new horticulture developments across all the main crop types. It is looking to expand its horticultural investments in apples, kiwifruit and grapes primarily. Craigmore allocates some money to innovation capital in the precommercial stage. The cider cultivar initiative could apply though it would be pushing the boat out a bit in proven ability. Craigmore would look to grow the apples under a long-term supply agreement with credible counterparty. The key factors would be who the partner is, and their credibility, payment terms, financial strength of business etc. In considering any cider opportunity, important factors would be how close we are to our markets; or would you send juice to cider makers offshore or export the cider itself?

Genesis Nurseries

Genesis Nurseries' CEO said the company could produce 1 million trees as there was a lot of latent capacity now. Genesis was focusing on growing good quality trees and a good price. It did not want to get into the market analysis of which varieties would have good demand or not. Genesis should be using Prevar's The Candidate Cultivar to try to get the sector going. The premium cider project was very exciting, and Genesis would be happy to help.

Ngāti Pāhauwera Trust

The key drivers that would be considered important by the Trust in evaluating Cider an opportunity was an understanding of the whole value chain and ethics. Ngāti Pāhauwera were currently exploring development of land in rural areas of their rohe to provide revenue and employment opportunities for their people (e.g. Raupunga). They were concerned about the high costs of development due to licensing costs of club varieties and intensive management systems and were looking for appropriate alternatives. They felt that the cider apple opportunity, if it stacked up, would potentially be a good option.

Cedenco

Cedenco's Global Sales & Marketing Manager said that it processes 50,000 to 70,000 tonnes usually, with the biggest year being 200,000 tonnes. Its main business is juicing fruit and removing water for concentrate for local use and export. Not From Concentrate (NFC, i.e. fresh juice) is a small part of Cedenco's operation. There is a time limitation for use of NFC juice of six hours between pressing and use (similar for wine grapes). The case for investing in changing the existing approach doesn't stack up. The processor pays around 15-16c/kg for reject fruit from packhouses, 22c/kg for orchard run fruit and over 30c/kg for Granny Smith fruit (high acid). The main processors now are Cedenco and Profruit. Currently Cedenco is doing 5 million litres of NFC but it could easily expand to 15 million litres if need be. Cedenco would be interested in processing specialist cider apples. It would all depend on the supply chain – contract to grow, contract to crush and contracts to supply end customers. Cedenco tends to be a passive marketer and see its role as contract to supply. It is currently operating well under capacity due to shortage of apples for processing.

NZ Apples & Pears

NZ Apples & Pears' CEO said it would be up to growers if they wanted to grow cider apples as NZAP doesn't determine grower decisions. Processing apples are not within NZAP's remit and processing apples aren't planned to be included in the next six-year planning cycle. NZAP would be focused on possible biosecurity concerns, e.g., if an orchard was not regulated for export markets it might not follow the same spray programmes. This is a common problem now with different requirements for different markets as well as other produce such as grapes potentially just over the fence. If NZAP saw cider growers as a risk to the fresh industry, it would want to include cider in its Government Industry Agreement (GIA) or it could be run by the cider industry itself, as well as food safety.

Zeffer

Zeffer's CEO explained it was New Zealand's largest independent cidery and most experienced cider exporter. Its key takeaway from its USA export experience was the importance of a point of difference from local brands and clear pathway to scalability. Zeffer started exporting to China through a distributor pre-Covid and was at one time a leading imported cider brand in key tier 1 cities. However, the China business halted with Covid and has only recently restarted. The CEO noted that it was hard work to compete against large established brands with established distribution networks: New Zealand cider market: $92 million sales, average price $7-$8 per litre; Zeffer's pricing at a premium around $12 per litre. Cider was seen as a sweet cheap alternative to beer.

Morningcider

Morningcider's co-owner Tim Shallard explained that it sold its product in around 1200 places around New Zealand and exports to five countries. For a cider to be premium it would need good packaging and be like a good craft beer with energy and excitement. Distribution channels were the key factor for exporting and serious investment was needed. Morningcider's goal is to get to 1.5 million litres in three or four years in New Zealand. Exporting wouldn't be a key focus. However, Tim believed there was good potential in Asia. He thought that selling based on varietals of cider could possibly work, though at the moment, it was different to wine, and there were no scale brands pushing into styles. Morningcider used concentrate and Tim believed the level of sweetness/off dry was important and blending apples could give a more robust and consistent cider. Though there was definitely a market for independent craft cider, getting scale was challenging though. It was likely to be "more of a craft scene as the big guys control the taps in New Zealand".

NZ Hops

The Chief Executive of NZ Hops explained that New Zealand now has around 17 varieties of hops that it markets (out of a total of 200 varieties of hops). The high alpha hops were traditional and were more bitter, while aromatic hops provided aroma and flavour and had become New Zealand's signature hops. Of the 17, 12 were bittering hops while the other five were aromatic. The bitter hops were quite commoditised now. It took a long time, sometimes a decade, to get a hop noticed and up to hero status like Nelson Sauvin or Citra. You were heavily reliant on distributers, so the right distributer was critical, but your product needed to be good too. Having a hybrid model was ideal, i.e., selling some through distributers and some directly to customers. NZ hops had an extensive commercialisation arm that tested what might work out there. It triaged in New Zealand, then sent out hops to 30 breweries in key markets and New Zealand and got feedback. Craft brewers loved NZ hops because of the taste and aroma. It had to be unique. If premium cider was going to involve exporting the liquid, it would have to be premium to cover the transport costs. Like New Zealand did with wine. Globally beer and wine were waning, and the craft beer trend had peaked. Staying new and different was challenging given the saturation of options out there, e.g., RTDs could be developed in a huge variety. Consistent high quality would be important.

Apple Grower & Cider Maker, Hawke's Bay

The CANZ team met with Richard Burns who was interested in the economics of growing cider apples, what sort of value per hectare might be possible. He commented that export markets might be better than trying to compete against the 'big boys' in the domestic supermarkets. Richard thought that making cider was probably not for the faint hearted but it could be a lot of fun building up the sector. Richard said that the commitment and cost structure were very important and concluded that the relationships in the market and the sector were very important as there was a lot of cost in investing to produce apples.

Apatu Farms

Profitability would be the number one factor for Apatu Farms. Currently, some crops like processed peaches were marginal due to disease risk and labour costs. Fresh apples presented higher risks, but returns could be acceptable if everything went right. Capital development costs were also a very important consideration. Distribution would be important, e.g., getting someone like Constellation with Kim Crawford on board involved. You would want high yield and mechanisation to get labour out of the equation. Apatu Farms had and appetite to invest if the economics looked right.

Apple Grower, Tasman

An apple grower from Tasman told CANZ that cider apples would have to be very profitable. The orchardist had 120 ha of irrigable land and 130 candidate cultivar trees. He sold the apples to restaurants and at the roadside. He was cautious about juicing economics as juice had been dumped in Nelson due to the high cost of freight. The only alternative was stock food. He believed that Tasman had a unique climate and grew the best Honey Crisp in New Zealand. He noted that the candidate cultivar seemed to have more red pigment in Tasman than further north. He noted that it was difficult to find capital to invest. He'd invested in his orchard over eight years, and it seemed like all costs and no returns for a long time. He said that it cost $100,000/ha for a licence, $100,000/ha for the land and $85,000 to $90,000/ha to establish and develop it. He said that grapes had been overdone and that hops had hit a wall. They thought that there was unlimited demand but there wasn't. He said that some hop varieties weren't worth stringing up now.

Peckhams, Upper Moutere, Nelson

Peckhams Director Jody Scott believed that quality was the key factor as well as consistency of product. Cider was going well at the premium end. But supermarkets had a negative attitude. They're seeing cider going backwards. But they're not seeing the segments. Customers were confused, e.g., by inconsistent labelling. New Zealand cider needed an obvious and distinctive taste, like New Zealand hops, or kiwifruit. It had to be branded well as 'New Zealand' to have a real impact. Jody thought that there was no reason why cideries wouldn't pay a lot for apples, as long as they could sell the cider.

Kono NZ, Motueka, Nelson

Marina Hirst Tristram (GM, Sales and Marketing) and Karla Bradley (GM, Kono Horticulture) explained that Kono was very interested in the long term e.g. its strategy for 500 years. Whenua Ora, Families and Land. It was currently produces wine & beer, and grows grapes, kiwifruit, hops, apples and pears. Kono was working to make its horticultural operations more sustainable. For premium cider Kono believed that the economics would have to work, $/kg would be very important, so demand for cider would be needed. And it would need to be sustainable and an improvement on existing land use. Kono were not cider makers. Scale would also be important, and New Zealand's small domestic market wouldn't be enough. Exports would be necessary.

Waimea Nurseries, Appleby, Nelson

Waimea was happy to help build a premium cider industry. Waimea Nurseries services a significant portion of the commercial apple tree market in New Zealand and has substantial operations in rootstocks and propagation, also running a tissue culture laboratory in Hastings. There were a range of different rootstock options available with advantages and disadvantages, including vigour, strength of graft unions, and disease resistance. It took some time to develop up rootstocks that had cleared quarantine processes with the most widely planted selections being licensed from offshore parties; USA-bred Geneva rootstocks are also prevalent in the market. Waimea could provide apples for trial fermentation. Waimea said there was a lot of importation of new varieties and that red fleshed varieties were becoming more available.

John Loughlin, Director

John Loughlin thought that return on equity for premium cider production would need to be in the order of 10% to 12% and that you'd need more than that to get widespread early take up, though terminal value assumptions were very important to those calculations. He thought that integrated producers might be interested. John believed that for cider to work, there would have to be belief in the pathway through the value chain from the orchard to the pressing to the marketing to the consumer, who would need to be keen to drink a lot of it. There would need to be plantings at scale and the orchardist would need a counterparty that they trusted, e.g. how solvent was the counterparty? Growers would want to know, who is going to take their fruit. They would be wanting certainty of cash from their year's work. John said that there was real potential for some wineries to move into cider production. He said that partnering up with Constellation or Pernod Ricard to roll out the category would be a good move given their national and global distribution footprints. Another option was having a celebrity producer become a hero of the category at the small scale to show the potential. This could catalyse explosive growth in a cidery.

Zeden Cider, Bay of Plenty

Zeden had a green focus with 10% of its profits going to Forest & Bird NZ. The idea was to make cider that tasted good and wasn't all sugar. Australia probably had the most potential as an export market but in Australia cideries smaller than 150,000 litres production didn't have to pay excise taxes. The New Zealand wine sector had done a great job of creating 'New World' wines. We needed to make a 'New World' cider. Zeden thought that young people had very different ideas about alcohol compared to other generations and pointed to the popularity of Pals and Parttime. Young people weren't keen on lots of alcohol and wanted less sugar. The challenge was getting economies of scale and investment. Consumers were very price conscious in the current economic climate. Premium cider would have to be very different from the sweet cider/RTD-type product. A promise of quality was needed to achieve that. We possibly need to be like the Italian wine industry with an authenticity symbol.

NZ Wine

NZ Wine CEO Phil Gregan said New Zealand had succeeded because it had a special difference. You needed to avoid being a poor imitation of something else. New Zealand had the self confidence that we had a special difference, but we were also in the right place at the right time. Wine exported was averaging about $10/bottle or $7.50/litre. That compared to world market prices possible at $1/litre for unpackaged wine. That was the difference between the price of labeled wine with a clear identity, and non-labeled wine. In the wine sector, firm size was a poor predictor of profitability or success.

There was scope for New Zealand winemakers to invest in making cider. There were lots of multi-beverage companies now, e.g., wine, spirits and beer. However, most wine makers just make wine, and don't deal with anything else. For a premium cider industry to follow in wine's footsteps you'd need some passionate and committed people to put some dollars on the line. This process wasn't a straight line; people would try one thing then another. The opportunity needed to be identified and people told about it. Most of the key decisions that were needed were individual decisions, e.g., growing, cider making, brand development etc.

People tend to think that an industry association could fix anything. It couldn't. It could do advocacy and some research and make sure that product identity standards were right. It was important to do the right thing with audits, spray diaries etc. as people wanted to know their food and beverages were safe and good in the widest sense of the word. However, achieving a united industry organisation of growers and wineries had taken 25 years. It could be done faster but that would need leadership to bring everyone along. NZ Wine didn't think there was any sense in setting up a cider industry body under its mantel. Cider needed to carve out its own identity.

NZ Wine's CEO said he hoped that New Zealand could do something special with cider. And if that was accepted, then we were duty bound to do something.

Coriolis

Coriolis Director Tim Morris said data at the orchard gate level was quite good but export data often lumped cider in with other beverages e.g. saki. There was no clear picture of each step of the value chain, with mark ups identified. Alcohol was driven by trends and fashion. 'In' and 'out' of style, hot one moment and price up, then falling prices. Tim thought there probably always would be a premium segment. But there was a huge variance in pricing e.g., wine.

Securing a big partner was the easiest way to grow, e.g., Coca Cola, Lion, DB, Asahi, where the dollars needed to develop premium cider were rounding errors and these guys could execute. As you grow beyond the microbrewery, its trucks on the road delivering your product that matter. It became a logistics game. Relying on the small guys could compound your risk. Most of the small brewers weren't making any money. Big companies like Heineken could land beer in China at less than it cost a small guy to buy the bottles. Scale was very important. It was easier to manage your relationship with one big guy than 5,000 little guys. The market was a bit like a pyramid. The top segment, willing to pay three or four times the normal retail price, would be quite small. You were likely to saturate this market quite quickly. For any given consumer product there's a bell curve but usually weighted to the cheap side. You can operate within the curve fine but making a new curve was a lot harder, e.g., fundamentally resetting expectations about cider pricing.

Mara Bio

Mara Bio was investigating using food processing byproduct streams and fermentation to produce bio active compounds and proteins. Some of these might replace animal and plant proteins in protein supplements. A liquid fermentation process is used to upcycle the agrifood sidestream to produce solid-rich biomass, that is separated and will be used for further extraction and purification steps. Mara Bio was more advanced in extracting proteins than nutraceuticals. Meat substitutes were an area of interest for Mara Bio.

Mara Bio had looked at apple pomace, and other food industry byproduct streams. It had a small-scale microbiology laboratory and was working at bench scale. The amount of sugar, polyphenols and rate of degradation were important. Mara Bio was working with fungi so they didn't need fungicides in the byproduct streams.

Yummy Fruit

Yummy Fruit GM Paul Paynter said the flaw in the current approach to cider was that many were wedded to an 'Old World' mentality. People could be very wedded to tradition. People were dreaming of being a little Europe: "It was like the New Zealand wine sector was all Muller Thurgau". But we've gone from being thorough and undeniable philistines to wine snobs in the space of a few decades. Hawke's Bay had wine making talent was pouring out of EIT, cider apples could be grown on more frost-prone land and probably didn't need as much water, fermentation could be contracted and industry scale juice production in Profruit, Cedenco etc. All the ingredients were here. There was also potential to keep capital costs down by reusing existing orchard or vineyard infrastructure.

Paul thought that currently the commercial players were just after the young with sugar and bubbles. The market was naïve and there was no aspiration. Aspirational people couldn't get supermarket space. Probably only about 1% of drinkers were discerning, Paul believed that he wasn't the guy to be investing at scale as he had three other projects to put dollars into.

Craggy Range

Steve Smith from Craggy Range thought there were a lot of people who wanted to follow the example of Sauvignon Blanc but that, in that case, there were a number of things that all aligned to have Cloudy Bay take off as it did, but none were planned. Among these factors, New Zealand had piggybacked on Australia's trail blazing of southern hemisphere wines in the UK. Food interests also changed to lighter foods. New Zealand's Sauvignon Blanc was very distinctive, a crisp, flavoursome and delicious wine that a younger demographic liked. It was hugely profitable for growers and wineries as it was a very good cashflow wine: on the market within four months and mostly all sold in 12 months. There's probably nothing else with all these factors aligning.

Steve commented that the wine sector's premium pricing was not the norm amongst beverages, although there were premium scotches and tequilas. Wine had been made for 10-12,000 years and the high end has existed forever. Single varietal stories had helped. Cider would need to tell a story like wine and be beautifully packaged and effectively licensed or trademarked e.g. Gimblett Gravels wines.

Steve suggested that potential investors in premium cider could be the likes of Turners & Growers as they were a marketing company who understood apples, but it would be unlikely to be the big brewers as they would be too focused on their existing game. High-end producers of wine in the USA or France could be interested as a climate hedge. He thought finding an offshore partner to invest in premium cider would be the best idea.

After the Roadmap team had explained the costs of producing premium cider, Steve said he thought the economics would work. Other advantages might be lower production costs through mechanisation, and the potential to use contract winemakers. Steve said the cider sector needed to find a name for its premium ciders that resonated, as a good name was critical to getting a premium. He said it was important to produce something distinctive, unique and that you owned the rights to the plant. The Roadmap team needed to find a great apple grower and contract all that grower's apples for six years.

Elemental Cider

Carmen Gray of Elemental Cider discussed the economics for cideries. A 50,000/litre belt press and ancillary equipment (like pumps, hoses and filters) had cost $100,000. The cost of storage had been about $1/litre for 50,000 litres/year in second-hand stainless steel tanks. Lighting, power and drainage were also significant costs. There are incremental costs if existing assets aren't sufficient. There was also a need to deal with byproduct using settling ponds etc. In Carmen's case the pomace goes to a local dairy farmer. Expenses for a cidery were apples, yeast, nutrients, processing aids. Carmen described how excise made up $2.83/litre, the bottle was $1 for a 500ml bottle. Labels were 36c per bottle for two labels with other expenses being around 10-15 cents/litre. Apple costs were 30c/kg for culinary apples and 50c/kg for premium cider apples. Consumer awareness was the key issue: $10/bottle was acceptable but $15/bottle was a problem. Pubs and cafes wanted kegs, not premium ciders. People commonly said "Oh, I don't like cider" but it turned out that what they really meant was they didn't like sweet cider.

Horowhenua Orchardists

Horowhenua orchardists Iain Latter and Daniel Kilsby-Halliday reported the money from growing cider apples wasn't great. The maths works much better if you were selling the cider. Getting 50c/kg for the apples was pretty marginal, $1/kg was a lot better. The key problems were the time it took to grow the trees to production as well as the low yields. Small fruit size was also a problem. They had planted four varieties, half a hectare in each of the four varieties in August 2019. Now at the five-year mark, they were getting yields of Knotted Kernel Coronel at 5 tonnes/hectare, Brown Snout had produced 1.4 tonnes/hectare, Kingston Black about 10 tonnes/hectare while Yarlington Mill had produced 16.4 tonnes/hectare (Yarlington Mill was a large fruit). So, only some varieties of cider apple stack up. This was compared to fresh apples producing at 60 to 80 tonnes/hectare at five years old. 40 tonnes/hectare would be economic. Agronomically the old varieties were a real challenge. There was a lack of experience and knowledge about suitability of cider varieties under New Zealand conditions.

Pruning was the main cost. They were definitely interested in what savings mechanisation could bring and (after our meeting) had purchased a German ground sweep harvester. They were committed to planting out another 1.5 hectares and another hectare the year after. They were keen on anything that could improve the yields.

Appendix One

MPI's Orchard Models

- The Ministry for Primary Industries (MPI) Hawke's Bay and Nelson-Tasman regional pipfruit orchard models provide an indication of the production and financial performance of export-focussed pipfruit orchards in the Hawke's Bay and Nelson-Tasman regions.
- The model parameters of orchard size and variety mix are guided by regional statistics from Statistics New Zealand's Agriculture Production Survey and New Zealand Apples and Pears Inc.
- The planted area in the models (and hence the production data) will reflect a mix of new, maturing, and mature orchards across the variety mix, and different growing systems.
- The models do not reflect single variety orchards, nor a specific production system.
- Production, income and expenses data and information are collected from a survey panel of contributing orchards, representing a cross-section of pipfruit orchards in each region.
- Data from the contributing orchards are averaged, adjusted as necessary and used to create the pipfruit orchard models.
- All labour inputs in the models are fully expensed, meaning that there is no separate unpaid labour component included in the orchard models.
- The pipfruit orchard models use a 31 December balance date.
- More information about the orchard models is provided in the Orchard Models Data Excel file available upon request from MPI.

Source: Presentation : MPI Pipfruit Monitoring Programme Hawke's Bay and Nelson-Tasman Pipfruit Orchard Models 2021, 2022 and 2023 Budget, December 2023, slide 30

Appendix Two

Fruit Wine & Cider Makers Association of NZ views on Regulation of the Cider Industry

NZ Regulatory Environment Cider Making

1. The Regulators

Alcoholic beverages sold in New Zealand, including cider, face regulation requirements from Food Standard Australia & New Zealand (FSANZ), Ministry for Primary Industries (MPI) and NZ Customs in the form of tax. Legislation that influences consumer demand, such as minimum age requirements for purchasing alcohol, blood alcohol limits for drivers and guidelines for cider retailers (including licensing), also affects cider production.

FSANZ

All food sold in Australia and New Zealand must comply with food standards. These standards are compiled in the Australia New Zealand Food Standards Code. New Zealand (FSANZ) is an independent statutory agency established by the Food Standards Australia New Zealand Act 1991 (FSANZ Act) and regulates the production and labelling of cider in Australia and New Zealand.

FSANZ is governed by a Board, which works to the Australia and New Zealand Food Regulation Ministerial Council (Ministerial Council). The Ministerial Council is made up of New Zealand and Australian (both state and commonwealth) health ministers, as well as representatives from other portfolios.

FSANZ Codes outline ingredients permitted in alcoholic beverages, and various standards, including the labeling guidelines, which must detail the product's number of standard drinks, alcohol content and pregnancy warning labels.

Ministry for Primary Industries (MPI)

If you make grape or non-grape wine (cider, perry, vegetable/fruit wine or mead), or supply their ingredients, you need to follow Wine Act 2003, administered by MPI. This Act applies to the making of all wine for reward or for the purposes of trade or export.

Grape Wine and Non-Grape Wine (i.e. cider) businesses need to register a wine standards management plan (WSMP) or meet MPI National Programme 3 for food safety rules (if not exporting). The WSMP designed to help producers meet their obligations under the Wine Act 2003. Both NP3 and the WSMP needs to be verified/audited and registered with MPI. Small winemakers (those who make less than 20,000 litres of wine over two years) are exempt from having a verified WSMP. Exempt wine makers cannot export from New Zealand.

NZ Customs

If you make, sell or give away alcohol in New Zealand, NZ Customs charge excise duty and a Health Promotion Agency (HPA) levy on those products. You can only do so from a licenced area (NZ Customs-controlled areas) where those products are made and stored. The tax is collected on all alcohol (≥1.15% ABV) manufactured in or imported into New Zealand. Exporters of alcohol pay the excise relevant to the country they export to. Every year, at the start of July, the alcohol excise rates are adjusted for inflation.

2. Regulatory Impacts

2.1. Production & Composition rules

Under Standard 2.7.3 of the FSANZ Code, cider is a fruit wine prepared from the juice or must of apples or apples and pears.

(a) a food that:

(i) is prepared from the complete or partial fermentation of fruit, vegetable, grains, cereals or any combination or preparation of those foods; and

(ii) is not a wine or a wine product; or

(b) such a food with the with the addition of any of the following during production:

(i) fruit juice and fruit juice products;

(ii) vegetable juice and vegetable juice products;

(iii) sugars;

(iv) honey;

(v) spices;

(vi) alcohol;

(vii) water.

The Code lists what ingredients can be added as shown above. Unlike wine, there are no standards limiting the amount of water, sugar and other approved ingredients that can be added to cider. Nor are there any guidelines specifying the final content of fresh' apple/pear juice or concentrate in cider/perry. As a result, various types of products are available in NZ, ranging from products made from 100% apple juice to pre-mix products with added water, sugar and/or fruit juice currently labeled as 'cider'.

There is also no means to differentiate between cider and fruit wine. For example: a cider containing 100% apple juice then has concentrated raspberry juice added to it. Based on the ingredients and production method, the drink now meets the definition of 'fruit wine', not cider because of the added raspberry juice. This drink can be called 'Cider with raspberry' as the Code doesn't say that you must use 'fruit wine' in the name. Compliance is not policed by FSANZ. The onus is on the producer to comply. It is assumed the labeling requirements are audited correctly under the WSMP.

Under Standard 2.7.4 of the Code, wine is defined as:

(a) a food that is the product of the complete or partial fermentation of fresh grapes, or a mixture of that product and products derived solely from grapes; or

(b) such a food with any of the following added during production:

(i) grape juice and grape juice products;

(ii) sugars;

(iii) brandy or other spirit;

(iv) water that is necessary to incorporate any substance permitted for use as a food additive or a processing aid.

Wine must be made out of 100% grape juice, yet cider (which is made under the same Wine Act), can have sugar and other additions. Major cider producing countries have a minimum juice content requirement (Germany 95%; Spain 100% (natural) and 50% (sparkling); US 50%; France 50%; UK 35%; Denmark 15%; and Sweden 15%).

In 2023 the Fruit Wine and Cider Makers Association of New Zealand (FWCMA) and Cider Australia approached FSANZ requesting a change to the Code. It was noted by FSANZ that the wine rules are kept up to date but the cider rules have not evolved in 40 years. The change being sought is to strengthen the compositional requirements for cider by prescribing cider and perry may contain no less than 50 per cent by weight of fruit juice and fruit juice products in the finished product and to add definitions for products lacking in the Code such as *methode traditionelle* cider, fortified cider, apple and/or pear spirit, and apple and/or pear brandy. The purpose of this change is to:

- provide adequate information to enable consumers to make informed choices;
- prevent misleading or deceptive conduct by producers;
- ensure greater consistency with wine; and
- promote consistency between domestic and international food standards.

FSANZ do not proactively make changes to the Code, even where it is clear the Code is not meeting the needs of industry or consumers. An application process with FSANZ is required, which is costly, and takes considerable time. FSANZ does not take into consideration international developments.

2.3 Sugar Content

Cider is made when yeast ferments sugar in the juice and converts it to alcohol. The starting point can either be apple/pear juice or concentrate. Sugar and water can be added to reach the desired alcohol level. This means that the initial apple/pear fermented juice content can be significantly diluted. Fruit juice and juice concentrate can also be added post fermentation to increase sweetness, provide a rounder mouthfeel and to lower the alcohol level. As a result, significant amount of sugars can be in the cider without the need to declare it.

Whilst FSANZ currently exempts alcoholic drinks from displaying nutritional information panels, including energy (KJ) or carbohydrates (sugar and added sugar), they are investigating sugar labelling on alcohol:

Proposal P1059: Energy labelling on alcoholic beverages and P1049: Carbohydrate and sugar claims on alcoholic beverages

These projects focus on amending the Code to require the declaration of energy (kilojoule) content information, in a prescribed format, on the label of packaged alcoholic beverages and to clarify requirements in the Australia New Zealand Food Standards Code with respect to claims about carbohydrate content and the components of carbohydrate (such as sugar) in relation to food that contains more than 1.15% alcohol by volume (ABV), including alcoholic beverages. Whilst NZ Cider supports the mandatory provision of energy content and sugar claims on alcoholic beverages, there is concern about FSANZ's current proposal which would require a large and detailed information panel to be placed on labels.

2.4 Level of Sweetness

A more important point is how to define sweetness in cider. This relates to marketing as well as production. Like wine, cider can be dry (little to no sugar), to very sweet. However, wine follows an international standard for wine sweetness levels as shown in Table 1.

Cider does not have a standard definition. FSANZ specifies that if a food is low sugar, it must be under 2.2g/L for all foods. Individual industry associations voluntarily determine their own definition of sweetness levels, usually via competitions and as the table below shows, the FSANZ low sugar definition, is not considered to be low sweetness. As the table also shows, there is discrepancy across the different industry bodies and with wine, and this causes significant consumer confusion.

A dry cider in NZ could be classified medium in Australia, UK and semi-sweet in the USA. In addition, as this is a voluntary standard, there is no link to the FSANZ code. Thus, as we've seen in New Zealand, a cider could be labeled "Extra Dry" and contain 45g/L sugar.

So how can the consumer really know the sweetness of a cider? Feedback from Nelson Venues, the event organiser for the annual NZ Cider Festival indicates consumers are requesting more detail as to exactly how sweet the different ciders are and that impacts their purchasing decision. Clear labeling guidelines to tell customers how sweet a cider is, is important and should be worth taking forward.

Table 1: Industry Definitions of Sweetness Levels in NZ, Australia, US, UK

NZ Cider Awards New World Cider Awards (NZ)		Cider Australia		Great Lakes International Cider and Perry Competition (US)		International Cider Awards (UK)		Wine in NZ	
Dry	<20.5 g/L RS or Final S.G of <1.008	Dry	<9 g/L	Dry	<9 g/L or Final S.G of <1.004	Dry	S.G of <1.008 <12 g/L	Dry	<4 g/L
Medium	20.5-38.2 g/L RS or Final S.G 1.008-1.015	Medium	9-25 g/L	Semi Dry	9-18 g/L or Final S.G 1.004-1.007	Medium	S.G of <1.005-1.015 12-40g/L	Medium/ Off Dry	4-9 g/L
		Medium Sweet	25-40 g/L	Semi Sweet	18-45 g/L or Final S.G 1.0074-1.017			Medium Sweet	10-45 g/L
Sweet	>38.2 g/L RS or >Final S.G of >1.015	Sweet	>40 g/L	Sweet	>45 g/L or Final S.G >1.017	Sweet	S.G of >1.015 >40g/L	Medium Sweet	>45 g/L

2.5 Tax/Excise

There are two corrective taxes on alcohol products in New Zealand: alcohol excise and the Health Promotion Agency (HPA) levy. Both are charged on alcohol manufactured in, or imported into, New Zealand; and both are collected by the New Zealand Customs Service. Revenue from alcohol excise is pooled with revenue from other taxes and directed to various spending programmes through the Budget process. Revenue from the HPA levy funds the HPA. Alcohol excise rates are customarily increased in line with inflation each year.

Rates of alcohol excise vary by product type and alcohol volume. Some rates are applied on a per litre basis, while others are applied on a per litre of alcohol basis.

Table 2: 2023 Excise Rates for Cider, Beer & Wine

Beer	2023	
Containing more than 1.5% vol., but not more than 2.5%	$0.53	per litre
Containing more than 2.5% vol.	$35.45	per litre of alcohol
Wine (grape fruit & vegetable)		
Containing more than 14% vol., (incl fortified)	$64.57	per litre of alcohol
Other	$3.55	per litre
Cider, Perry, Mead, Spirits		
Containing more than 1.15% vol., but not more than 2.5%	$0.53	per litre
Containing more than 2.5% vol., but not more than 6%	$35.45	per litre of alcohol
Containing more than 6% vol., but not more than 9%	$2.84	per litre
Containing more than 9% vol., but not more than 14%	$3.55	per litre
Containing more than 14% vol.	$64.57	per litre of alcohol

This rates structure means the effective rate of excise per litre of alcohol varies considerably across different products. Figure 1 below illustrates the effective rates for cider, beer and wine at different alcohol volumes per litre of alcohol, whilst figure 2 shows the effective rates per litre of product.

This is significant as craft (fermented pure apple/pear juice) cider (and beer) sits naturally at the 5-7% ABV range. Non-craft cider (and beer) has been specifically made to be in the 4-5% range. Craft ciders are therefore effectively penalised for being "real" ciders.

Fig 1: Effective rate of excise per litre of alchohol 2023

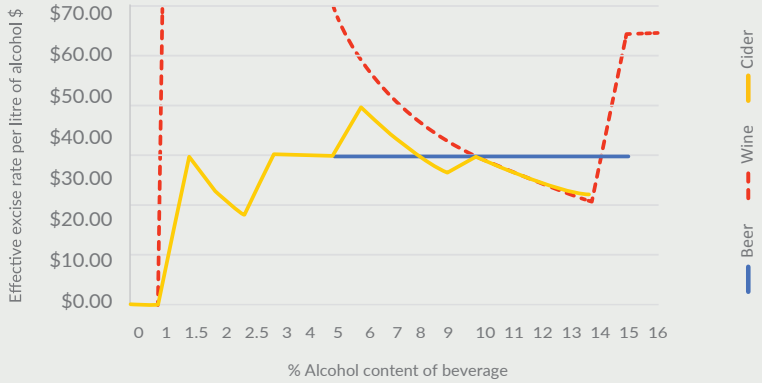
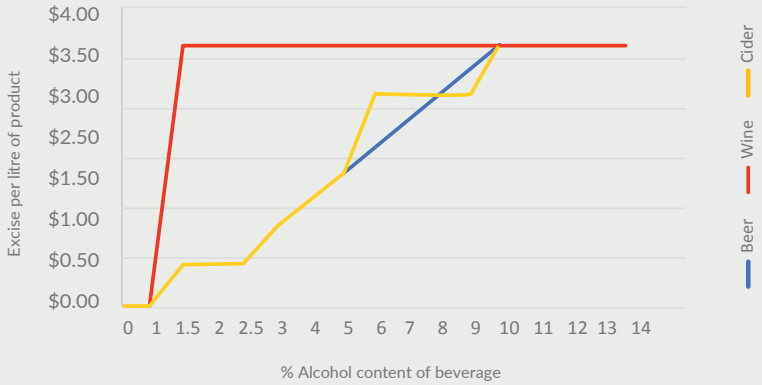


Fig 2: Effective rate of excise per litre of product 2023



2.6 Discussion

The Code definition of cider/perry and lack of a consistent definition for sweetness levels is lax for both New Zealand and Australia and does not align with the regulatory approach in other major cider producing countries. In effect there is no minimum quality standard for cider or any means to accurately differentiate premium/quality/traditional cider. It does not support consumer choice or promote honesty in marketing. It also makes it easy for the larger companies, who produce about 90% of all cider to produce as much (diluted) cider as possible to enable sales at the cheapest price. It is also easy to see how mass-produced cider has become such big business enabling these producers to promote their products on a greater scale.

It is apparent that in order for a premium cider industry in New Zealand to grow, changes are required in the FSANZ Code. This would contribute to setting a level playing field among producers and create a clear segmentation of the market. It would also improve information for consumers, increase trust in beverages bearing the denominations 'cider' and 'perry', and enhance the products' value.

Options include:

- amend the Standard 2.7.3 of the FSANZ Code to strengthen the compositional requirements for cider by prescribing a minimum juice content for cider and perry; i.e. containing no less than 50% by weight of fruit juice and fruit juice products in the finished product.
- introduce a new category of cider/perry, differentiating the relatively inexpensive mass consumption cider/perry/fruit wines (industrial mix of apple/pear juice, water, flavours, sugar) from quality or traditional cider/perry (fermented pure apple/pear juice).
- Introduce consistent labeling terminology to help inform consumers when making purchasing decisions based on desired product's characteristics, such as sugar content (similarly to wines).

Introducing a minimum quality standard for cider, or having a set definition for premium or craft cider will help drive the sustainable development of the premium cider category and ensure integrity across the category as the market develops. It will enhance the ability of consumers to identify the true nature of cider and perry products and make informed choices.

The proposed reforms will not stop the production of fermented beverages that contain less than 50% juice, or do not meet the compositional requirements. It will simply help differentiate the premium products better.

In relation to the industrial processing, higher costs may occur for producers currently producing low quality/cheaper products if they would decide to continue to sell their product with the name "cider" under a new standard. These producers still have the choice to remain in their lower market segment and sell their product under a name different from cider/perry; depending on their market position, this may mean a deterioration of the commercial value of their product or at least additional initial costs in terms of marketing. Therefore, the segment of lower quality products which would lose the name "cider/perry" – often produced by larger industrial facilities. Having said that, the industrial manufacturers producing these kinds of beverages are often active in multiple beverage markets and products and could adapt their marketing strategy and so avoid losses.

The current excise tax rate on cider also disproportionately penalizes traditional/premium ciders/perry (fermented pure apple/pear juice). There is stronger incentive for producers to make under ABV 6% ciders, which are predominantly diluted, flavoured and full of added sugars. Alignment of excise tax to match craft beer rates provide a greater incentive for innovation and a balanced playing field.

Greater alignment with international standards would also simplify the compliance task for importers and exporters.

International Scan

Australia

Whilst Australia follows the same FSANZ Code and Standards, they don't have the same production/manufacturing regulations the NZ does with respect to the Wine Act. Instead, wine making in Australia has a specific section of the FSANZ code, with no guidelines available for cider makers.

Cider Australia is a voluntary industry body protecting only small cider producers' interests. Unlike New Zealand, which is mandatory, the large producers are not members. The group's main objectives are to advocate on behalf of the industry in regard to various issues, including taxation and export opportunities. Cider Australia also aims to increase awareness and provide education about cider in Australia.

Currently 82% of Australian cider is made using imported apple concentrate, 8% is made using foreign grown fruit from New Zealand, the United Kingdom and France whilst only 10% is made in Australia from Australian Grown fruit.

CiderAustralia has set a voluntary code; the 100% Australian Grown trust mark, awarded to members of Cider Australia to ensure the ciders meet a minimum industry quality standard. This includes:

a. 100% of the apples and apple juice concentrate and pears and pear juice concentrate used in its production were grown in Australia, including any fruits, vegetables or spices added;

b. it is defined as a cider or a fruit wine under Standard 2.7.3 of the Australia New Zealand Food Standards Code and

i. contains a minimum of 50% apple/pear juice by weight in the final product

ii. does not contain added ethyl alcohol.

Out of the total 96 Cider Australia producing members, 72 producers are approved to use the 100% Australian Grown trust mark. No large producers are eligible to use the trust mark as they are not members.

Apple/pear cider is taxed under the Wine Equalisation Tax except for fruit ciders, which includes added flavours below 8% ABV (flavoured ciders above 8% are taxed under WET as a 'fruit wine') at 29.0% of the wholesale price. Fruit cider is taxed under the alcopops tax, similar to RTDs and has a much higher tax burden per standard drink.

Cider producers, which are taxed under the Wine Equalisation Tax (WET) scheme, are also eligible for a producer rebate scheme. The scheme provides a rebate of up to 29.0% of tax paid on domestic sales. The rebate disproportionately benefits smaller cider producers relative to their industry revenue, and thus supports the operations of small craft cider breweries and new entrants.

The Federal Government further tightened the WET rebate eligibility criteria in 2018. The criteria now mandate that 85.0% of the product (wine, cider, perry, mead and sake) by volume in its retail sale form must originate from the owner, and that said owner must own it for the entire production process. The product must also be packaged in a container that is suitable for sale, does not exceed 51 litres and is branded with a producer or associated entity's trademark.

Europe

European cider and fruit wine association (AICV) represents over 180 cider and fruit wine manufacturing companies in Europe. Most of them are relatively modest in size, although there are some large producers, mainly in the UK, France, the Netherlands, Denmark, Ireland, Spain and Germany. Over 5000 people are directly employed in the cider and fruit wine industries and the sector generates many indirect jobs, mainly in the agricultural sector through the production of apples and other fruits.

The terms 'cider' and 'perry' are currently used in the EU for a multitude of beverages based on apples and pears, respectively, with different key characteristics. For instance, various types of products, ranging from products made from 100% apple juice to pre-mix products with added sugars, are currently labelled as 'cider'. The only regulated elements at international level are food additives permitted in the production of cider through Codex Alimentarius and EU legislation. This leads to unfair competition among producers as not all consumers readily discern the differences between products that are labelled 'cider' or 'perry'. In this respect, the information available to consumers is inadequate for a proper purchasing choice.

While there is no international definition for cider and perry, standards for these products exist in some markets. These mainly differ according to the following key criteria, which have a strong impact on the production costs and the quality of the product:

- The minimum content of apple/pear juice (including juice and/or concentrate) in the cider/perry (varying from no specifications of minimum juice content to 100% depending on the market) (e.g. 100% in France),
- The minimum content of 'fresh' apple/pear juice (i.e. excluding concentrate) in the cider/perry (e.g. minimum 50% in France),
- The addition of water or not,
- The addition of sugar to the apple/pear juice before fermentation (i.e. 'chaptalisation') or not, and
- The addition of alcohol (i.e. 'fortification') or not.

Moreover, some markets have cider-specific detailed mandatory standards in place and also labelling rules which describe the product quality and allow identifying origin, such as Protected Designation of Origin and Protected Geographical Indication (e.g. France, Spain). Some other markets have cider-specific, 'base-level' marketing standards (e.g. Denmark, Finland, Slovakia, Sweden). In Sweden, for example, cider should be made from at least 15% apple juice. In Germany, production guidelines have been developed by the cider sector, which are complemented by labelling rules under the national legislation. Finally, in a number of markets, e.g. Belgium, Bulgaria, Germany, Ireland and the Netherlands, no cider marketing standards exist.

In the absence of any EU specification for 'cider' and 'perry', the issue of fair competition for producers would remain and the asymmetry of information for consumers would not be addressed.

The AICV are working with the EU to define a marketing standard for cider and perry: more market value and better information to consumers. An EU marketing standard for cider and perry would define the essential (minimum) requirements to be met by the products concerned. This would contribute to setting a level playing field among producers and create a clear segmentation of the market. It would also improve information for consumers, increase trust in beverages bearing the denominations 'cider' and 'perry', and enhance the products' value. The marketing standard would also define a range of parameters (e.g. optional reserved terms (ORTs)), their corresponding technical characteristics (e.g. authorised treatments and substances), and the raw materials authorised for their production on the model of the legislation concerning oenological practices or fruit juices.

The improvement of the overall coherence of the regulatory framework applying to cider and perry production and marketing across the EU would facilitate intra-EU trade and ensure a level playing field for producers. Clear rules about the products and labelling reduce trade uncertainties and also transactional costs for economic operators.

Country	Alcohol content	Fruit juice	Addition of sugar	Descriptors
Denmark	According to Industry Code of Practise: » Min. 1.2% ABV » Max. 8.5% ABV Low alcohol cider: <1.2%	According to Industry Code of Practice: Min. 15%	Addition of sugar permitted before or after fermentation.	/
Germany	Min 5% ABV for Apfelwein	Apple juice, fresh or stored or rediluted from concentrate. Addition of aqueous pomace extract up to a maximum 1/10 of the pressed liquid.	Addition of sugar permitted before and/or after fermentation.	/
France	Actual alcohol: » Min 1.5% ABV for all cidres » Max 3% ABV for cidre doux Potential alcohol: » Min 5% vol for cidre » Min 5.5% vol for cidre bouché » Min 4% vol for fermenté de pomme	Cider can come from apple or pear juice with no maximum specified for pear. Maximum of 50% from concentrate. Poiré is only from pear juice.	Addition of sugar permitted in cidre bouché only after first fermentation for production of natural effervescence (must have 5% actual alcohol before addition of sugar).	DEMI-SEC: sugar >28g/l - <42g/l BRUT: sugar <28g/l DOUX: sugar >35g/l BOUCHÉ DOUX: sugar > 42g/l
Spain	» Min 4% ABV » Min 5% ABV for “natural” cider.	Min. 60% juice or min. 2,5 kg of fruit (whole or shredded) per liter of water in the cuvée. Concentrated juice is permitted. The following may be added,: -apples/pears, whole or shredded, apple/pear juice or concentrated apple/ pear juice	Sugar addition is permitted for final sweetening after fermentation except in “natural cider”	Voluntary descsriptors: Sidra: EXTRA SECA (Extra dry): sugar<=20g/l SECA (Dry): sugar >20 and <=30g/l SEMISECA (Medium-dry): sugar >30 and <=50g/l DULCE (Sweet): sugar >50g/l
Poland	» 1.2 – 8.5% ABV	Min. 60% juice or min. 2,5kg of fruit (whole or shredded) per liter of water in the cuvée. Concentrated juice is permitted	Addition of sugar permitted before and/or after fermentation.	-wytrawny (dry) - sugar ≤15g/l -pótwytrawny (semi-dry) -sugar >15g/l, but <30g/l -pótstodki (semi-sweet) - ≥30g/l, but ≤60g/l -stodki (sweet) - sugar >60g/l

Canada

The experience of Quebec, as reported in a written contribution of the Syndicat des Cidriers Indépendants de France, provide a real example of the benefits that the introduction of marketing standards in the sector can bring about. In Quebec, from the 1970s when cider was officially re-introduced after several years of prohibition, the supply of cider, in particular from industrial production, grew very rapidly and created serious difficulties for traditional producers. Cider was mass-produced, at low cost, and at a mediocre quality and health issues were reported due to industrial production methods. The introduction of strict standards (i.e. at least 80% of juice extracted from apples harvested in Quebec, in addition to various other criteria) changed the situation dramatically. Total sales of cider have steadily increased over the years and today Quebec is a region well-known for the quality of its cider.

UK

Current rules mean that ciders and perries made from a minimum of 35% juice at pre-ferment with a specified minimum juice sugar content can be taxed and sold as cider. This allows cider to be made from concentrate as well as fresh pressed juice. Even with a min juice content, most mass-produced brands are only using around a third of the apples used in traditional ciders, this has resulted in apple producers facing a serious crop surplus as the demand for apples decreases. This is putting the future of many traditional British orchards at risk and is at the very least pushing down the wholesale market price of apples for British fruit farmers.

There is the beginning of a movement to raise the minimum juice content from 35% to 50%, with craft producers feeling this will lead to an increase in price and reputation of cider, more competitiveness for smaller producers, provide a level of integrity in the product whereby the consumer is confident in the product and renewed demand for orchards which are being pulled out.

Cider producers used to receive a tax exemption, so that the smallest businesses paid no tax at all. A key problem with this system was that once a cider maker produced more than 7000L of cider a year, they had to pay the full amount of tax on everything they produced. This sudden tax bill made it hard for small producers to grow their businesses. The Government has agreed to expand the exemption for small cider makers into a progressive duty scheme. The smallest producers will still pay no tax, but as businesses grow, the rate of tax owed will now increase slowly and in line with the amount of cider they make. This will help the smallest producers compete with the largest brands, giving consumers a wider choice of ciders and perries at the bar.

Sweeteners can be used (saccharin, aspartame, etc.) and the name must be accompanied by the words with “sweetener(s)” or if sugar is also present the name must be accompanied by the words “with sugar(s) and sweetener(s)”.

Flavouring can be added (not just fruit juice, extract, or pulp), but must be labelled “cider with xyz flavor”.

If you live in the Three Counties cidermaking region (Herefordshire, Worcestershire, and Gloucestershire) you can apply for a Protected Geographical Indication (PGI) certificate. PGI is equivalent to the French Appellation Controlee status. To qualify you must source all your apples from within these counties, the apples must be bittersweets and you must use freshly pressed juice, not concentrates.

Appendix Three

Options for delivery of premium cider apple cultivars

PFR SPTS No. 25474 | Kumar S, Parker N | May 2024

1 Introduction

The global cider market is growing, particularly the premium and craft segments, as cider drinkers are becoming more sophisticated. Growth in the cider industry represents increased market opportunities for fruit producers, but competition for limited supplies of fruit may present barriers for future growth of the industry. Cider makers around the world use several types of apple cultivars, including dessert cultivars culled from fresh market production channels, 'dual purpose' cultivars grown for both fresh market and cider markets, and specialty cider cultivars with unique juice chemistry suited for cider making (Merwin et al. 2008). New Zealand has an opportunity to grow a premium cider apple industry like the wine grape industry and to deliver proprietary novel cider apple cultivars that will excite consumers globally.

This report will specifically discuss the following topics:

- Selection and target traits of interest for cider apples
- Plant material that could potentially be suitable
- Breeding process for fresh-market and cider production
- Phenotyping techniques to screen existing germplasm for selection traits
- Targeted breeding programme
- Licensing structure for potentially available genetic material.

2 Selection and target traits of interest for cider apples

The modern cultivar breeding for fresh-market apples focuses on many traits, including fruit appearance, colour, flavour, taste, texture, storage capacity, and disease resistance. In contrast, cider varieties have attributes that provide important and noteworthy characteristics to the resulting cider. These attributes include sweetness (due to sugar content), sharpness (due to organic acids, predominantly malic acid), bitterness and astringency (effects of tannins and other polyphenolic compounds), and flavours (provided by volatile aromatic compounds) (VanderWeide et al. 2022). The contents and profiles of polyphenols are important quality indicators since they contribute to the colour, bitterness, and astringency, which provide the mouthfeel of cider (Karl et al. 2023).

It is well known that the content of phenolic compounds varies greatly depending on the cultivars and fermentation strains (VanderWeide et al. 2022). The difference between cider cultivars is best encompassed by the Long Ashton Research Station (LARS) classification system, which separates varieties into four categories based on their concentrations of tannin (% tannic acid) and acidity (% malic acid): sharp (low tannin, high acid), sweet (low tannin, low acid), bitter-sharp (high tannin, high acid), and bitter-sweet (high tannin, low acid) (Karl et al. 2023). This classification system primarily serves as a guide to cider producers in determining attributes of apples to blend.

Two classes of phenolics are most relevant to apples and cider: phenolic acids and flavan-3-ols (VanderWeide et al. 2022). Phenolic acids and flavan-3-ols largely represent the bitter and astringent taste of hard cider, which enhance the sensory experience by providing "mouthfeel" and "body" to the beverage. The important flavan-3-ols include catechin, epicatechin, procyanidins, and polymeric tannins; and the phenolic acids primarily include phloretin, phlorizin, chlorogenic acid, and gallic acid (VanderWeide et al. 2022).

Sensory evaluation of fruit is the main criterion to evaluate the suitability of cultivars for the fresh market. Sensory fruit traits such as sweetness, acidity, bitterness, and astringency are also considered for evaluation of potential cider cultivars (James et al. 2022). Flesh firmness is also sometimes considered desirable for cider apples, as firmer fruit produce particles with a greater ratio of surface area to volume when milled, which allows for more efficient pressing (Root & Barrett 2005).

Analysis of juice samples is a common practice to evaluate the preliminary suitability of apple cultivars for cider. The commonly assessed traits include sugar content (°Brix), pH, titratable acidity (TA, malic acid equivalent) and phenolics. Although it is possible to use fruit/juice traits as indirect indicators of cider quality, the selection for cider cultivars should ideally be based on the sensory and/or instrumental evaluation of the end-product. i.e. cider. The hedonic scale (for example, 0–5) has been used effectively for assessing cider attributes such as appearance, aroma, sweetness, acidity, mouthfeel, and overall flavour (Bradshaw et al. 2016).

It would be very expensive and time-consuming to base the selection on cider traits, especially at the early stage of breeding (Stage 1) which involves screening of thousands of seedlings. Therefore, it is common practice (VanderWeide et al. 2022; Bradshaw et al. 2016; Sanoner et al. 1999) to first evaluate potential cider varieties based on the fruit and/or juice quality traits discussed above. Historically, breeding efforts in some cider breeding programmes focused on the development of sweet, bittersweet, and bitter cultivars with higher productivity, and a range of harvesting times (James et al. 2022). Like the fresh-market cultivars, breeding objectives for cider varieties have also considered some other traits, such as regular bearing and climate change adaptation (Vergneaud et al. 2022).

3 Plant material that could potentially be suitable

Around the late 1950s, budwood from about 500 cultivars including heritage cultivars, cider apple and crab apples was imported from overseas. Over the last few decades, plant material from this collection has been shared with the New Zealand public, and this germplasm resource was recently identified as a Nationally Significant Collection (NSC) as part of a Ministry of Business Innovation and Employment (MBIE)-supported project. However, we have a project underway to update the catalogue of all our plant material holdings, which will include apples. The cataloguing, along with global developments in international expectations and best practice, mean that in consultation with MBIE, we have agreed to conduct a full reassessment of which material can be made available to the public. The review is a complex and time-consuming endeavour, firstly requiring Plant & Food Research to consult with multiple entities to clarify rights to ownership, access, use in research, use in breeding, and so forth

The project involves a substantial amount of research and collation owing to the historical nature of many of our accessions, and the fact that any records that may have existed to document those acquisitions were paper-based and not filed in a central repository. Lists for the NSC for each crop will then be created and updated. This due diligence is required to create the new NSC for each crop and any previous designations of collection availability no longer apply.

To broaden the genetic base for the commercial apple breeding programme, the second collection was made in the early 1990s, when open-pollinated (OP) seeds of about 500 Malus domestica cultivars and other Malus species and crab-apples were imported from around the world. Noticeably, OP seeds from a well-known cider variety ‘Arkansas Black’ were also included in this collection. During 1994 to 1996, about 60 OP seedlots of Malus sieversii were also collected from Kazakhstan. Selections from these OP seedlots have been used as parents for the development and commercialisation of new cultivars in a Prevar programme.

There are a range of public domain white-flesh varieties in New Zealand which could be of interest for cider production. These varieties include: ‘Bisquet’, ‘Bordes’, ‘C'Huero Ru Bien’, ‘Gloire de Ponchartrain’, ‘Golden Russet’, ‘Kingston Black’, ‘Mother-in-Law’, ‘Newtown Pippin’, ‘Rosa du Perche’, ‘Sweet Alford’, ‘Uster Gorria’, ‘Egremont Russet’, ‘Wilmont Russet’, ‘Merton Russet’ and ‘Yarlington Mill’. Access to these cultivars can be requested via online portal: https://www.plantandfood.com/en-nz/our-plant-collections. Additionally, there are proprietary selections within Plant & Food Research’s collections and programmes that may have potential for novel cider production. Terms and conditions for access to the proprietary selections are to be negotiated on a case-by-case basis until the necessary due diligence has been completed to re-establish a Nationally Significant Collection.

Plant & Food Research's apple cultivar breeding programme historically focused solely on fresh-market cultivars, with the addition of red-flesh (RF) as a novel consumer trait (Volz et al. 2009). RF apples are usually high in phenolic content, leading to astringent taste. Very little research has been done on the production of cider from RF apples, which offer a unique hue that would catch consumers' attention (van Nocker et al. 2017; James et al. 2022). A recent study showed that simultaneous inoculation using some specific yeast strains and lactic acid bacterial strains is an effective method for preparing RF apple cider (Li et al. 2020).

Since the late1990s, Plant & Food Research's breeding programme has identified several Type 1 and Type 2 RF selections (Volz et al. 2009) that could be considered for cider evaluation.

It is also worth mentioning that apple breeding programmes led by Prevar, Cider Apple NZ (CANZ) and some other entities could have genetic material worthy of commercial cider production.

4 Breeding process for fresh-market and cider production

Standard apple cultivar breeding follows three stages. The first stage (Stage 1) is to identify parents from the pool of available candidates, cross them, and select the best offspring from large families. In Stage 2, multiple copies of the selections are propagated onto clonal rootstocks for trial across different environments, while in Stage 3, larger-scale testing of the best selections is conducted, often on commercial orchards. These three stages of evaluation (Figure 1 below) can take up to 15 years, suggesting that commercial cultivar development is a long process.

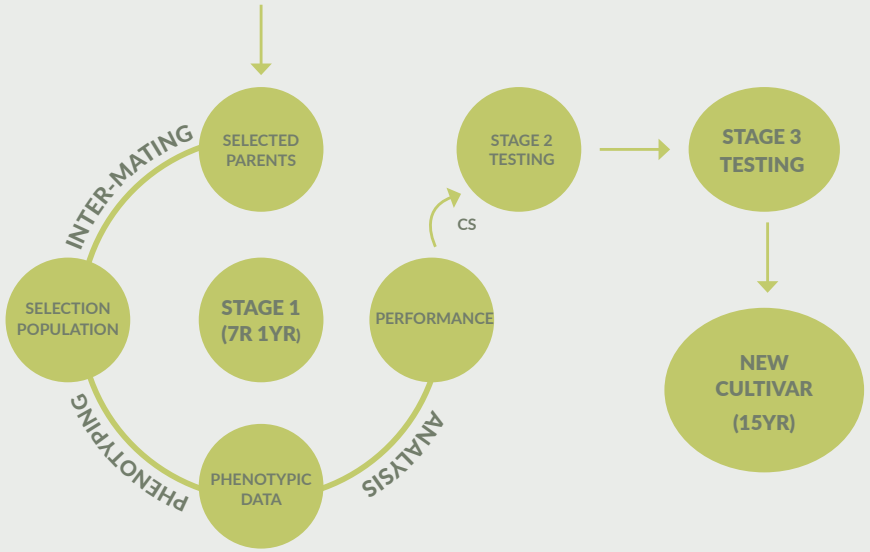


Figure 1. The three stages of conventional apple cultivar breeding.

Technically, cider cultivar breeding would follow the same process as described above. The red/white-fleshed accessions with some known cider traits would be crossed with commercial varieties for the integration of consumer and production traits. Stage 1 seedlings will be assessed for the fruit and/or juice quality traits (described above) considered relevant for cider production. As evaluation of cider quantity/quality would require a decent quantity of fruit, the Stage 2 trial would be ideal for assessing production traits and making cider for sensory evaluation.

Cloning the Stage 1 seedling population could be an option to supply a sufficient quantity of fruit to make cider for instrumental/sensory evaluation, but a cost-benefit analysis of this option would be desirable.

5 Phenotyping techniques to screen existing germplasm for selection traits

Sensory fruit quality traits (e.g. sweetness, astringency, bitterness, acidity, flavour, firmness, juiciness) relevant for cider production could be assessed using the same protocol as adopted for fresh-market cultivar breeding. The key traits to be assessed in the juice include soluble solids content (measured as °Brix), TA, pH, tannic acid content, and specific gravity (SG). Brix and TA can be determined using a portable Brix/TA meter (ATAGO USA, Bellevue, WA), while a hydrometer and a pH meter are commonly used for SG and pH, respectively. Phenolic compounds can be measured using the LC-HRMS technique (Kumar & McGhie 2023), and the total tannins are generally characterised using the methylcellulose (MC) precipitation assay (Sommer et al. 2022).

Instrumental traits (e.g. Brix, TA, pH, SG, tannins) assessed in the juice as potential selection traits could also be assessed in the end-product (cider) using the same phenotyping techniques. Similarly, some of the sensory traits (e.g. sweetness, astringency, bitterness, acidity, flavour) assessed on apple fruit are also key measures of cider quality (Bradshaw et al. 2016). A large population of Stage 1 seedlings is unlikely to be phenotyped for the end-product (i.e. cider), so an understanding of correlations between the selection and target traits would be essential to enhance the efficiency of the selection process to identify candidates for Stage 2 trials.

6 Targeted breeding programme

Accessing apple's genetic diversity might be useful in cider apple cultivar development, as the genetic improvements needed in cider apples have not yet been realised. Hundreds of apple cultivars have been selected for making cider over the centuries, but the identification of new cultivars is needed to produce cider for evolving consumer preferences.

Targeted screening of public domain and/or proprietary accessions that are known to display cider quality-related traits would be a good starting point for a targeted breeding programme. The potential accessions listed earlier could first be assessed for the selection traits (fruit sensory and fruit juice) and target traits (instrumental and sensory analysis of cider) to identify a few accessions for large-scale evaluation and/or to choose parents for cultivar breeding. There would be a strong case to initiate a targeted breeding programme if the cider quality from these accessions did not meet/exceed the market standards. It is widely believed that cider apple is indeed a crop in need of genetic improvement, especially to meet the expectations of a new generation of consumers (Miles et al. 2020; James et al. 2022). The basic premise of a targeted breeding programme would be to integrate production traits of fresh-market cultivars with cider traits of selective more primitive germplasm.

As discussed earlier, conventional apple breeding takes at least 15 years to develop a new cultivar, but the advent of genomic technologies has facilitated faster breeding. Using existing legal technologies (i.e. non-genetic engineering), a fast-breeding programme could be designed using marker-assisted foreground selection for major gene-controlled traits (e.g. TA, astringency, flesh colour) relevant to cider production. This would take place in combination with whole genome-based background selection for polygenic traits (Kumar et al. 2012) and agronomical practices (to reduce the juvenile period). Whole genome selection technology has the potential to reduce the Stage 1 apple breeding cycle from 7 years to 2 years (Kumar et al. 2012), as shown below in Figure 2.

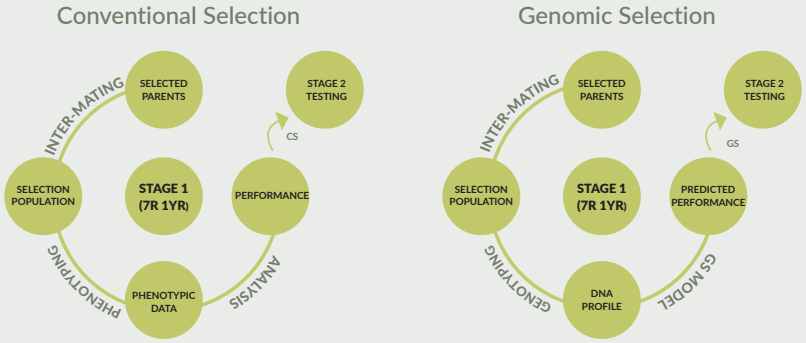


Figure 2. Schematic diagram showing the main features of conventional selection and genomic selection.

Molecular markers for traits of interest (e.g., TA) have been developed; however, it is known that the observed phenotypic effect at a given marker locus can vary between families, indicating that marker-trait associations will need to be investigated in the target seedling populations. A training population of about 1000 Stage 1 seedlings could initially be genotyped and phenotyped for conducting genome-wide marker-trait association analysis to identify any large-effect single nucleotide polymorphisms (SNPs) for the application of marker-assisted selection (MAS) for foreground selection in subsequent generations. The same training population could also be used to develop genomic selection (GS) models for background selection for polygenic traits. The approximate costs for skim resequencing of a population of 1000 seedlings would be about $NZ130,000. Once traits-associated markers have been identified and the GS models have been cross-validated, the cost for implementing MAS and GS would depend on the size of the cider breeding programme. For application of MAS, the cost for DNA extraction and screening for a trait-linked marker is about $NZ5 per seedling at present.

The sensory profile of cider largely depends on apple juice composition, type of microorganism (e.g. yeast for fermentation) involved, and the technology applied. The main criteria for the classification of apple cultivars for cider quality are acidity (contributes to the astringent flavour), phenolic compounds (impart the bitter taste), and sugar content (determines the alcoholic content) (Calugar et al. 2021). Apple cultivars, as well as the microorganisms, can be genetically modified to produce novel ciders. For example, hybrid yeast strains derived from protoplast fusion techniques (a type of genetic modification) were shown to enhance desired apple cider traits, compared with those of the parental yeast strains (Wang et al. 2020).

Understanding of the molecular genetic mechanisms of different apple phenotypes has progressed rapidly over the last two decades (De Mori et al. 2023), which allows identification of candidate genes for Agrobacterium-mediated or CRISPR-Cas9-mediated genetic modification of apple cultivars (Campa et al. 2024). Candidate genes involved in biosynthesis and accumulation of TA in apple fruit have been reported (Krishna et al. 2021) and could be targeted for CRISPR-Cas9 editing. Genome editing was recently applied to successfully alter the phloridzin biosynthesis in apple (Miranda et al. 2023), suggesting that this technology could potentially be used to alter some specific phenolic compounds (e.g. tannin) in apple cultivars, to enhance cider quality. Fast flowering may be another trait that can be manipulated using genome editing, to shorten the breeding cycle (Charrier et al. 2019) and thereby fast-forwarding the development of cider cultivars.

7 Possible licensing structures for potentially available genetic material

7.1 Why license a cultivar?

Bringing new cider apple cultivars to market would typically involve some sort of licence structure between the owner of the genetic material and those who wish to access the material for commercial use, balancing commercial opportunities and returns on investments for all parties. Possible commercial structures range from tightly controlled exclusive licences, which operate within a closed-loop model, to more open non-exclusive licences that allow broader market access but may result in diluted returns to the cultivar owner.

7.2 Protecting intellectual property

Regardless of the chosen framework, plant variety protection through the use of Plant Variety Rights (PVRs) and/or trademarks remains essential to safeguard the interests of variety owners. PVRs grant owners an exclusive right to exploit their new cultivars, enabling them to control the production, cultivation, distribution, and marketing of their new cultivar, whereas trademarks protect names (i.e. brands) of goods and services that help to build and maintain consumer recognition and loyalty. By effectively leveraging these IP rights, breeders, owners, and all those involved in the cider industry value chain can generate revenue through licence agreements, where third parties pay to use these protected cultivars or brands under specific conditions.

7.2.1 Cost of obtaining Plant Variety Rights (PVRs) in New Zealand

Plant Variety Rights fees for apples in New Zealand excl. GST (NZD)	
Application fee	$625
Distinctness, Uniformity and Stability (DUS) testing of apple varieties at the Cultivar Centre	$10,000-15,000
Examination fee	$770
Annual renewal fees*	$385
Approx. total cost**	$20,635-$25,635

*Woody plants, such as apple, have a PVR term of 25 years under the Plant Variety Rights Act 2022.

** Assumes you have renewed the grant annually to expiry.

The latest updates to the Plant Variety Rights (PVR) fees in New Zealand took effect on 24 January 2023. These fees are detailed on the Intellectual Property Office of New Zealand (IPONZ)'s website. These fees cover various stages of the PVR process, including application, examination, and annual renewals, and have been revised under the new Plant Variety Rights Act 2022. MBIE, which oversees IPONZ, is currently reviewing these fees, with the possibility of a fee increase in 2025.

The testing of pipfruit and stonefruit varieties usually occurs at specified testing centres in New Zealand. Apple variety description and DUS testing is conducted at the Cultivar Centre at Plant & Food Research in Hawke's Bay. The costs related to using the Cultivar Centre are negotiated directly between the applicant and the Cultivar Centre, without IPONZ involvement. These costs vary depending on whether the varieties are seedlings or mutations (sports), and on the quality of the trees supplied for testing. Typically, a minimum of four years from tree planting to a decision by the Plant Variety Rights Office is required.

A schedule of fees to complete the variety description and DUS testing at the Cultivar Centre, and the assessment of uniformity for sports can be obtained from the Cultivar Centre on request. Please note that these are subject to change from time to time.

7.3 Examples of licensing structures for new cultivars

Disclaimer: Please note that owing to commercial sensitivities, specific examples of royalty rates are not disclosed in this document. The information provided below is intended for general guidance only.

7.3.1 Tree-based royalties

This licensing model charges a royalty based on the number of trees sold by a licensed nursery. This model is usually non-exclusive, with low barriers to entry for growers; however, with no control applied to fruit sales it quickly commoditises harvested material. This type of model requires nurseries to report the number of trees sold annually, simplifies royalty calculations, and is straightforward for nurseries and growers to administer.

7.3.2 Area-based licences

Licensing fees are charged based on the area planted with the new variety. The licence agreement would specify that any grower cultivating the new apple cultivar shall pay an annual royalty based on the total area cultivated with these apples. This structure simplifies the calculation and collection of royalties, reducing the need for detailed tracking of tree counts or production volumes. Growers and cultivar owners can also more accurately forecast their future revenue, as the payment is tied to the planted area This model can be used in exclusive and non-exclusive licensing arrangements; it requires annual reporting of the total planted area under cultivation, with periodic audits to ensure compliance to the licence terms.

7.3.3 Value-based licences

Under this model, royalties are based on the value of the harvested material. Growers pay a percentage of their sales revenue back to the variety owner. This model enables a variety owner's proportional to the value delivered by a cultivar. By linking the royalty payments to sales revenue, this structure aligns the interests of both parties as they benefit directly from the market success of the cultivar.

It also motivates both parties to continuously improve and market the cultivar, as higher sales directly translate to higher earnings for both. The management of these types of licence models can be exclusive or non-exclusive, but each licence requires regular financial reporting on the sales of the fruit and/or juice, with provisions for financial audits and compliance measures.

7.3.4 Hybrid models

Another method might be to use a combination of licensing models to bring a cultivar to market. An example of a hybrid model might be where a grower pays a per-tree royalty (collected from a licensed nursery), plus a percentage of net sales revenue share from the grower's ongoing sales of fruit and juice. This is a balanced approach, keeping both parties engaged in the cultivar's success and performance in the long term.

Managing hybrid models can be resource-intensive, especially as they grow more complex and involve multiple licences. Tracking nursery tree sales, grower outputs and sales across numerous licensees and stakeholders can quickly become challenging.

Each of the above licensing examples above will need to be carefully assessed, designed and curated for specific needs of the cider market, offering flexibility and benefits for cultivar owners, management companies, growers and nurseries. The chosen structure should reflect the overall strategy of maximising cultivar adoption while ensuring sustainable returns on investment for everyone in the value chain.

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Report prepared by:

Satish Kumar

Principal Scientist, Tree Crops

May 2024

Report approved by:

Zac Hanley General Manager Science, New Cultivar Innovation Portfolio

May 2024

For further information please contact:

Satish Kumar

Plant & Food Research Hawke's Bay

Private Bag 1401

Havelock North 4157

NEW ZEALAND

Tel: +64 6 975 8880

DDI: +64 6 975 8893

Email: Satish.Kumar@plantandfood.co.nz


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