

ROADMAP FOR

Premium Cider Industry in New Zealand

CIDER APPLES NEW ZEALAND LTD (CANZ)

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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

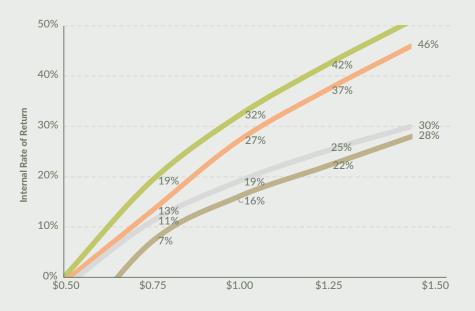
Our analysis of the potential earnings from premium cider orchards and cider making indicate that both could be very profitable. For this to happen, the orchardist would need to earn \$1/kg or more for cider apples, and the cidery, with a million litre/year capacity, would need to earn revenue of \$8/litre 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

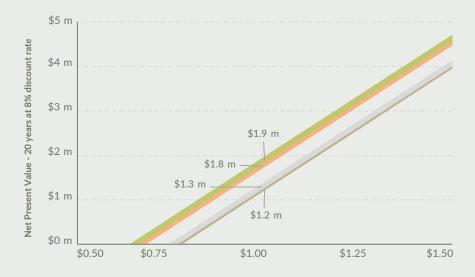


Price of Premium Cider Apples paid to Orchardist



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.



Price of Premium Cider Apples paid to Orchardist



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.

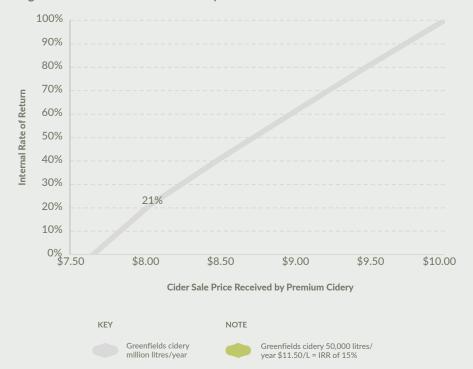
Currently, \$1/kg is a top-end price for the best quality specialty cider apples. As is common in the UK, there would need to be a contract in place, with a price around this level or better and a term that adequately compensated the orchardist for the risk of their investment in premium cider apple 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



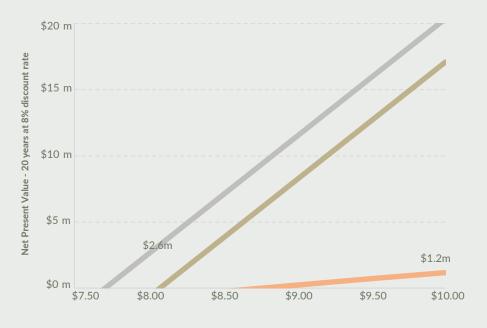
It could be possible to improve these estimated IRRs, and scale up with lower risk, if the cidery started out having its cider made by a contract cider maker. We estimate that a contract cider maker might charge between \$1/litre to \$2/litre depending on the extent of the services provided.

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/litre¹. Our analysis of the economics of cideries was based on more detailed work done by Simon Pearce of the Cider Factorie, Tauranga.



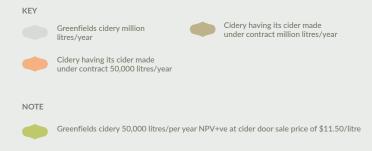
See NZ Wine KPI January 2024 at https://www.nzwine.com/media/2sea2gkt/nzwine-kpis-jan-2024.jpg

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.

Cider Sale Price Received by Premium Cidery



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.



^{&#}x27;Off trade' is sales through retail outlets, e.g. supermarkets or liquor stores

^{&#}x27;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 kev 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
lain 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 kev 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



