

# An Overview of New Zealand's Viticultural and Aquaculture Industries

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# Viticultural Industry

## Overview

New Zealand's entry into the upper echelons of winemaking happened in the late 1970s when its wineries started making what many critics consider as the world's best Sauvignon Blanc. Hailing from the Marlborough region, this wine was revered for its sharp notes, its hint of lime, and its exotic aroma. This 'breakthrough' led to the production of wine in massive quantities over the next few years.



Today, New Zealand has a global reputation for high quality, well-made wines. The New Zealand wine industry employs several production techniques. While the traditional vineyard is very much alive with grapes grown in family-owned estates, contract growing is also an accepted feature of the industry.

It's common for Kiwi winemakers to start out as contract growers. For instance, a Gisborne grower will sometimes market an Auckland Pinot Noir or a Waikato Cabernet Franc while waiting for his or her grapes to mature.

The NZ wine industry had an estimated turnover of NZ\$2 billion in 2014, with export earnings making up NZ\$1.33 billion of this.

Wine makes an even further contribution to the NZ economy, due to the investment in vineyards and wineries and the plant and equipment that's needed to operate them.

Internationally, NZ wine generally achieves a premium price in export markets and competes directly with other premium temperate climate countries. The New Zealand wine industry's key overseas competitors include France, Germany and Chile.

## History

For much of the 20th century, grape growing was confined to the warm northern half of the North Island. Although 19th-century settlers had managed to grow wine grapes in a number of regions, and an early viticultural expert identified suitable areas in the southern North Island and South Island, few grapes were grown south of Hawke's Bay until the 1970s.

The government ran a viticultural research station at Te Kauwhata, in the Waikato, from 1901 until the 1980s.

As recently as the 1960s, government viticulturalists advised that the South Island was unsuitable for growing wine grapes. In the 1970s and 1980s, some people chose to ignore this advice. They planted the right grape varieties for their sites, and went on to produce award-winning wines.

In the 2000s New Zealanders grew cultivars of *Vitis vinifera*, the European or wine grape, as did 19th-century settlers. But between 1900 and 1970, a North American grape, *Vitis labrusca*, and hybrids of American and European grapes dominated New Zealand's vineyards. Chosen because they were resistant to phylloxera – the root aphid that infected some young vines in the late 1800s – they cropped well, but generally produced inferior wines.

Of more than 8,000 known grape cultivars, only about 50 are grown in New Zealand. In the 1970s and early 1980s, Müller-Thurgau and cabernet sauvignon were the leading varieties. This had changed by 2007, when sauvignon blanc was the most common type planted (10,491 hectares), followed by pinot noir (4,441 hectares), chardonnay (3,918 hectares), merlot (1,447 hectares) and pinot gris (1,146 hectares).

# Major Producing Regions

Much of New Zealand's success in wine production is owed to the country's climate and soil composition. The country's alluvial deposits are perfect for growing various types of grapes. Right now, New Zealand's biggest winemaking districts are Gisborne, Hawkes Bay, Wairarapa, Marlborough, Nelson, Canterbury, Central Otago, Auckland, and Martinborough.

- **Gisborne**—Gisborne is the fourth-ranked region in New Zealand in terms of grape production. Its vineyards are known for their excellent Chardonnay, Chenin Blanc, Gewürztraminer and Riesling wines. This region is also a popular holiday destination for locals because of its beautiful landscape, sunny weather, and its close proximity to the Bay of Plenty, which is home to two of the biggest wineries in the country.
- **Hawkes Bay**—Located on the Eastern side of the North Island, Hawkes Bay is New Zealand's top wine and food tourism destination. Since the 19th century, the region has been regarded as a viticulturist haven because of its mild weather and diverse soil composition. These factors make the area conducive for growing fruit and producing wine.  
Chardonnay is the most commonly produced grape variety in this region, though you will also find vineyards growing Cabernet Sauvignon, Merlot, Viognier, Cabernet Franc and Syrah grapes.
- **Wairarapa**—In recent years, the scenic region of Wairarapa has undergone a small transformation with the establishment of wine storage houses, cafes, and excellent restaurants. Although big hotels are limited, there are many farm stays and inns for tourists who want to explore the area. Most wine growers plant their vineyards on alluvial terraces in stony and free-draining soils. The region's long sunshine hours, low rainfall, and cool nights produce some of the best grape varieties in New Zealand. Wairarapa wineries are popular for their superb Pinot Noir, a very difficult wine to make because the grapes must be extremely ripe when picked.
- **Marlborough**—Producing 67% of all local wine plantings, Marlborough is regarded as the biggest winegrowing district in the country. It also has a stellar reputation for producing the world's best Sauvignon Blanc. Other wines to watch out for in this area include their first-rate Chardonnay, Riesling, and Pinot Noir.
- **Nelson**—Known as the sunniest city in NZ, Nelson's soil composition is suitable for growing various types of wine grapes.
- **Canterbury**—Canterbury boasts of a dry summer and cool winter that creates stony and alluvial soils, which are perfect for different types of wine grapes. Some of its popular wineries are in the Banks Peninsula, Burnham, and the ever-expanding Waipara sub-region.
- **Central Otago**—Central Otago is the southernmost wine-producing locale in the world. With its hot and dry summers and snowy winters, this area is perfect for growing and harvesting outstanding grapes.
- **Auckland**—New Zealand's largest city, Auckland has over 100 wineries and vineyards. In fact, the city is home to the oldest vineyards in the country.  
The regions surrounding the city produce red wines that grow on clay soil. Some of its most popular winegrowing towns are Northland, Keri Keri, Warkworth, and Matakana. Notable wines include Auckland's Cabernet Sauvignon and Chardonnay.
- **Martinborough**—Located in NZ's North Island, Martinborough is a small wine village that has a remarkable topography, geology, and climate. This unique combination is what attracted many winemakers to move to this region. Despite the area's low wine production, it still ranks highly in terms of output quality.  
Martinborough's secret lies in the breezy conditions that add to the wine's overall vitality. Its cool climate also makes it perfect for growing Pinot Noir, Riesling, Syrah, and Pinot Gris grapes.

## Statistical Overview

- New Zealand's wine industry underwent explosive growth during the 2000's with the number of wineries increasing from 358 in 2000 to 672 in 2010. The total production area grew from 10,197 hectares at the beginning of the decade to 33,425 by 2010.
- By 2010 wine had become one of the country's top 10 export earners generating \$1,041,000,000 in overseas sales, up from \$168,600,000 in 2000.
- By 2010 however, the impact of the Global Financial Crisis (GFC) had become apparent with the average value of grapes having fallen from a 2008 peak of \$2,161 per tonne to \$1,293. This had a significant impact on land values with prime Marlborough land, which had been transacting at between \$250,000 and \$300,000 per hectare, falling to \$130,000 per hectare.
- The downturn in land values and an oversupply of wine, brought about by falling global sales and record vintages saw new vineyard development entering a hiatus with there having been no addition to the production land figures since 2010.
- Deloitte noted in its "Vintage 2012" report on the New Zealand wine industry that exporters had also reported an increase in case sales. This may have been the result of the smaller vintage but could also indicate that demand for branded product was again on the rise.
- Bolstering the improving sentiment within the industry is the growth of new markets for New Zealand wine, primarily China. Traditional markets such as Australia and the United Kingdom continue to dominate accounting for 62% of export sales by volume and 56% of export sales by value in 2012.



## Recent Production Figures

- New Zealand vineyards achieved a record average yield in 2014. The almost perfect growing conditions for the 2014 harvest meant the nationwide average grape yield was 12.5 MT/ha, 45% above the long term average since 1997 of 8.6 MT/ha.

NEW ZEALAND PRODUCING VINEYARD AREA BY GRAPE VARIETY									
	(Hectares)								
	2006	2007	2008	2009	2010	2011	2012	2013	2014
Sauvignon Blanc	8860	10491	13988	16205	16910	16758	20270	20015	20027
Chardonnay	3779	3918	3881	3911	3865	3823	3229	3202	3211
Riesling	853	868	917	979	986	993	770	787	787
Pinot Gris	762	1146	1383	1501	1763	1725	2485	2403	2412
Other White Varieties							509	502	489
<b>Sub-Total White Area</b>							<b>27263</b>	<b>26909</b>	<b>26926</b>
Pinot Noir	4063	4441	4650	4777	4773	4803	5388	5488	5569
Merlot	1420	1447	1383	1369	1371	1386	1234	1255	1256
Syrah							387	408	423
Cabernet Sauvignon	531	524	516	517	519	519	305	301	297
Other Red Varieties							309	299	298
<b>Sub-Total Red Area</b>							<b>7623</b>	<b>7751</b>	<b>7843</b>
Other & Unknown	2348	2520	2592	2705	3241	3393	449	525	741
<b>Total</b>	<b>22616</b>	<b>25355</b>	<b>29310</b>	<b>31964</b>	<b>33428</b>	<b>33400</b>	<b>35335</b>	<b>35185</b>	<b>35510</b>

Source: NZW, Post estimates

- Far from becoming more diversified over time the industry has become more concentrated on the Sauvignon Blanc variety. In CY2014 58% of total producing area was Sauvignon Blanc up from 39% back in CY2006. Because Sauvignon Blanc is a relatively high yielder in New Zealand conditions the variety produced 72% of the total grape tonnage in CY2014. The concentration on Sauvignon Blanc appears to have leveled off over the last three years but there is no indication that the trend has been reversed. White grape production comprises 88% of the total.
- Vineyard area growth had levelled off between 2012 and 2014 but is now forecast to be on a material growth trajectory again. Anecdotal reports suggest 1,000 ha of new plantings in CY2014 just in Marlborough province. This growth is primarily being driven by the largest corporate wine companies who have lower overheads and can make the current market conditions work for them. During the early 2000's it was smaller investors developing 10 to 20 ha blocks which drove vineyard area growth.

PRODUCTION TRENDS NEW ZEALAND VINEYARD AND WINE INDUSTRY										
Year Ending December	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 Forecast
Number of Wineries	530	543	585	643	672	698	703	698	699	700
Producing Area in hectares	22,616	25,355	29,310	31,964	33,428	33,400	35,335	35,182	35,510	36000
Average Yield ((tons per hectare)	8.2	8.1	9.7	8.9	8	9.8	7.6	9.8	12.5	9.9
Average Grape Price (NZ\$ per ton)	\$2,022	\$1,981	\$2,161	\$1,629	\$1,293	\$1,239	\$1,359	\$1,688	\$1,650	\$1,650
Tons Grapes Crushed (000's of Tons)	185	205	285	285	266	328	269	345	445	355
Total Production Wine (millions of liters)	133.2	147.6	205.2	205.2	190.0	235.0	194.0	248.4	320.4	255.6

WINE CONSUMPTION AND EXPORT TRENDS FOR NEW ZEALAND										
Year Ending December	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 Forecast
Domestic Sales of NZ Wine(million liters)	51.2	45.3	51.2	58.0	62.2	61.8	56.7	50.3	51.5	52.0
Imports of Wine (millions of liters)	38.8	42.7	38.6	31.9	33.2	28.1	34.6	39.9	39.0	39
Total NZ Domestic Consumption	90.0	87.9	89.7	89.9	95.4	89.9	91.3	90.3	90.5	91.0
Population estimate (millions)	4.21	4.25	4.28	4.33	4.37	4.40	4.43	4.48	4.55	4.60
NZ Consumption per Capita of NZ wine(L)	12.2	10.7	12.0	13.4	14.2	14.0	12.8	11.2	11.3	11.3
NZ Consumption per Capita of all wine(L)	21.4	20.7	21.0	20.7	21.8	20.4	20.6	20.2	19.9	19.8

Estimated Export Volume (millions liters)	64.7	84.1	98.7	128.5	157.2	168.1	176.6	175.8	194.1	215
Export Value(millions of NZ\$ FOB)	610.8	759.9	903.3	1014.0	1088.7	1135.0	1216.2	1254.9	1351.6	
Estimated Average Price NZD/L	\$9.44	\$9.03	\$9.15	\$7.89	\$6.93	\$6.75	\$6.89	\$7.14	\$6.96	
Export Value(millions of \$US FOB)	396.6	560.1	632.6	652.0	788.2	900.8	986.8	1028.5	1119.7	
Estimated Average Price USD/L	\$6.13	\$6.66	\$6.41	\$5.07	\$5.02	\$5.36	\$5.59	\$5.85	\$5.77	

Estimated Total Supply (Production + Imports) millions liters	172.0	190.3	243.8	237.1	223.2	263.1	228.6	288.3	359.4	294.6
Estimated Total Demand (exports+ consumption) millions liters	154.7	172.1	188.4	218.4	252.5	258.0	267.9	266.1	284.6	306.0
Interim balance of Supply less Demand	17.3	18.2	55.3	18.7	29.4	5.1	39.3	22.2	74.8	-11.4
Running Balance ie estimated stocks at end Dec	93.6	111.8	167.1	185.8	156.4	161.5	122.3	144.5	219.2	207.8

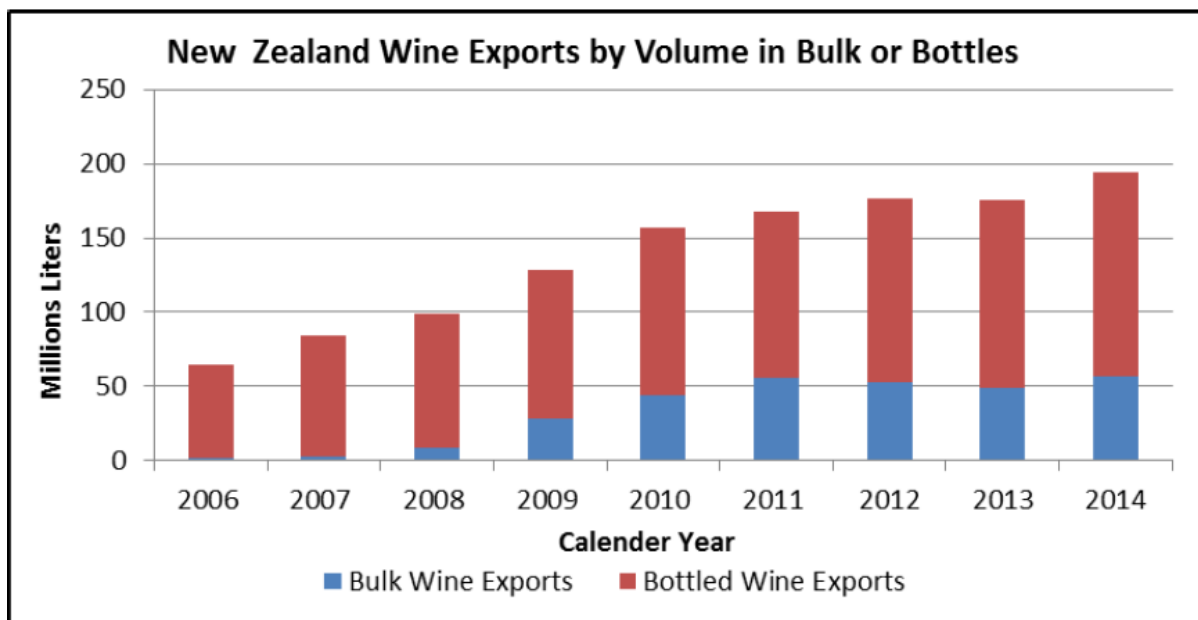
Sources: MPI, NZW, Post estimates, GTA

## Trade - Exports

New Zealand exported 194.1m liters of wine in CY2014 which was nearly 11% above the CY2013 total.

The demand for New Zealand wine in its offshore markets is growing either from targeted marketing campaigns or from overall economic wellbeing increasing in the middle classes who are most likely to purchase New Zealand wine.

The biggest problem facing wine exporters in 2015 is the appreciation of the NZ Dollar against the Australian currency.



Source: GTA



New Zealand Wine Export Statistics (HS Code 2204)									
For Calendar Years									
Destination Country	2012			2013			2014		
	FOB Value USD (millions)	Quantity (1000's Liters)	Price \$/L	FOB Value USD (millions)	Quantity (1000's Liters)	Price \$/L	FOB Value USD (millions)	Quantity (1000's Liters)	Price \$/L
Australia Total	310.5	50,664	\$6.13	317.3	53,297	\$5.95	295.0	52,852	\$5.58
United States Total	219.6	42,453	\$5.17	248.3	45,048	\$5.51	285.5	51,463	\$5.55
United Kingdom Total	234.2	53,196	\$4.40	228.6	47,020	\$4.86	281.2	55,750	\$5.04

Canada Total	59.8	6,853	\$8.73	65.2	7,416	\$8.79	70.8	8,581	\$8.25
Netherlands Total	22.6	4,645	\$4.86	25.0	4,571	\$5.46	29.1	5,313	\$5.47
China Total	24.2	2,450	\$9.89	17.1	1,753	\$9.78	22.9	1,918	\$11.96
Singapore Total	12.2	1,184	\$10.29	16.1	1,490	\$10.83	16.9	1,560	\$10.84
Hong Kong Total	15.8	1,546	\$10.23	15.5	1,441	\$10.78	13.8	1,386	\$9.94
Ireland Total	11.6	2,046	\$5.65	13.5	2,259	\$5.97	12.5	2,085	\$5.98
Sweden Total	10.3	2,121	\$4.83	11.5	1,819	\$6.31	10.7	1,579	\$6.76
Japan Total	11.2	1,153	\$9.68	11.6	1,180	\$9.83	10.6	1,163	\$9.08
France Total	7.0	665	\$10.56	7.6	894	\$8.50	10.3	1,054	\$9.79
Germany Total	7.5	1,774	\$4.24	9.3	2,066	\$4.50	10.0	2,148	\$4.65
Belgium Total	5.0	966	\$5.18	5.4	964	\$5.65	6.5	1,254	\$5.15
Denmark Total	4.6	896	\$5.15	5.1	824	\$6.21	6.1	1,032	\$5.95
United Arab Emirates	4.9	595	\$8.29	4.1	486	\$8.35	5.8	630	\$9.19
Rest of the World	25.8	3,235	\$7.98	27.3	3,314	\$8.24	32.0	4,346	\$7.35
<b>Total for all Exports</b>	<b>986.8</b>	<b>176,442</b>	<b>\$5.59</b>	<b>1,028.5</b>	<b>175,842</b>	<b>\$5.85</b>	<b>1,119.7</b>	<b>194,114</b>	<b>\$5.77</b>

Source: GTA

## Chinese Market

It is however the Chinese market which shows the greatest potential for significant growth over the short to medium term future. Having been a minor player just ten years ago, when it ranked as just New Zealand's 14th largest export market, it is set to move up within the next few years following explosive expansion over the last decade. China is now thought to be among the top five wine-consuming countries in the world. Total wine sales reached 2,395.5 million litres in 2014. Total volume sales rose 3 percent - higher than that in 2013, which slightly declined.

In 2003 New Zealand vineyards exported just 16,000 litres to China generating just under \$210,000 in export earnings. The period through to 2008 was characterised by steady rather than spectacular growth with export volumes climbing to 544,000 litres equating to \$6,130,000 in earnings. Subsequently, growth has accelerated with New Zealand Winegrowers reporting 2012 sales to have reached 2.2 million litres with a value of over \$25 million.

## Distribution Issues

While there is no doubt that the Chinese market offers huge potential, a number of difficulties need to be overcome if this potential is to be fully met.

The major problems are the question of scale and the securing of distribution channels. Up to now Chinese wine drinkers have shown a strong preference for red wine. Unlike Sauvignon Blanc, which is produced in large quantities red varieties are largely produced at the more boutique level, although recent years has seen expansion within Pinot Noir production.

Establishing a secure distribution network is another issue to be considered. A majority of export agreements secured to date have arisen as a result of a direct approach from a Chinese buyer to a single vineyard. The issue is further complicated by the fact that export regulations differ between provinces, in effect making each province a separate market. A similar problem faced by companies that have targeted the United States.

## Vintage 2015

Nationally, the 2015 harvest of 326,000 tonnes was down 27% on 2014.

Despite the challenges and the variations in yield, the quality of the harvest was good to high across the entire country, which bodes very well for 2015 wines.

As a result of the smaller 2015 harvest, growers' income will be lower.

Export volume growth will be constrained in the year ahead, and wineries will draw down on vintage 2014 inventory to meet demand.

Bulk wine prices, which declined in vintage 2014, have already risen.

With the supply of vintage 2015 wines tight, wineries will be seeking value growth, rather than volume growth over 2015/2016.

Going into vintage 2016 winery inventories are likely to be at least as low as those going into vintage 2014.

In terms of future supply, there has been a strong trend towards new plantings over the last two years, and an increase of 700 hectares of producing area is forecast over the next two years. We see these plantings continuing as strong sales in growth markets will fuel demand for increased production of key export styles.

The value of New Zealand wine exports grew a further 7%, to reach a new record of \$1.42 billion in 2015. This pushed wine to become New Zealand's sixth largest export good by value.

The value of exports to Australia declined slightly, but grew by over 10% to both the UK and USA, meaning those three markets now each account for around one quarter of our exports, at between \$350 to \$370 million each

# Issues & Challenges

Issues facing the NZ wine industry: a wine industry insight

New Zealand Winegrowers and Deloitte surveyed NZ wineries as to what their biggest issues and challenges are, and published the results in December 2014.



## Issue #1: Exchange rates

The New Zealand dollar has been persistently high for a number of years, making trading conditions very unfavourable for exporters.

The high exchange rates are a severe impediment to profitability – not just in the wine industry but all NZ exporters.

## Issue #2: Marketing product overseas

The challenge of marketing product overseas provides an interesting wine industry insight, as it is mostly the smaller wineries that are facing this problem. This is because the larger wineries (with an annual turnover in excess of \$20m+) already have established distribution channels.

Additionally, the large wineries have higher gross margins and higher profit levels (see the article on the numbers involved in commercial wine making), so they have more budget available for overseas marketing and advertising.

## Issue #3: Excise and other levies

This problem has been in the Top Three list in this survey since 2011. This is in line with the increases in excise tax over past years.

The authors of the survey report that they “would expect this issue to remain near the top of the list until greater profitability returns to the industry”.

## Other challenges faced by the NZ wine industry

Further wine industry insights can be gained from looking at the problems that hover near the top of the problem list, but didn't make it into the top 3.

These factors are:

- Grape supply (too little): this is more of a problem for large wineries than small wineries.
- Grape supply (too much): conversely, this is more of a problem for small wineries than large wineries.
- Interest rates: this was more of an issue for smaller wineries, who struggle to stay profitable.
- Labour supply/cost: this appeared mid-list for wineries of all sizes.
- Government/compliance costs: this also appeared mid-list for all wineries, indicating that legal requirements in the NZ wine industry are manageable.

## Non-issues/ low-ranking issues

More wine industry insights can be gained from looking at the low-ranking issues that respondents were asked about. These are:

- Access to capital: indicating that financing options are suitable for the industry.
- Affordability of land: this was at the bottom of the list for most wineries, apart from the large (\$20m+) companies, who ranked this as their Number 4 problem. This is most likely due to the sheer amount of land they'd need to purchase in order to expand their operations.
- Company tax rates: what's really interesting about this is that the small and medium-sized wineries (many of which struggle with profitability) don't see this as an issue. Yet the large (\$20m+) wineries that are very profitable rank this as their Number 5 problem.

A full copy of the survey and report is available in PDF format at

<http://www2.deloitte.com/content/dam/Deloitte/nz/Documents/wine/vintage2014-wine-survey.pdf>

In addition to the issues above, I also came across mentions of the following issues on forums, articles etc.

## Rootstocks and phylloxera

The root-ruining phylloxera aphid was found in some Auckland vineyards in 1895. Growers were advised to destroy all vines harbouring the pest, and replant with grafted European varieties grown on phylloxera-resistant American rootstocks – a practice that had saved the vineyards of Europe.

For over a century many New Zealand growers followed different pathways, growing American or hybrid grapes if phylloxera was present in their region, or ungrafted European grapes in phylloxera-free districts. For a time these strategies paid off, and New Zealanders drank fortified wines made from the hybrid varieties such as Baco and Seibel.

Slowly but surely, phylloxera spread throughout New Zealand – as predicted by early 20th-century government viticulturist Romeo Bragato. By 2007 it was present in all wine-growing regions, and many growers had pulled up their ungrafted European vines and replanted with grafted stock. New Zealand grape growers continued to investigate which rootstocks best suited their sites, and best matched the grape varieties and wine styles they wanted to produce. Most of the rootstocks used in New Zealand are derived from three American species – *Vitis riparia*, *V. berlandieri* and *V. rupestris*, or their hybrid combinations.

## Temperature

In most of New Zealand, spring and autumn frosts are always a possibility. Early autumn frosts can damage the grape crop just as it is ready for harvest, and late spring frosts can wipe out young shoots and flowers.

In cool summers, grapes may not ripen properly, or fail to develop the sugar and flavour levels winemakers need.

## Moisture

Since 1970, grape producers have increasingly moved from warm, wet northern and western locations (around Auckland and the Waikato) to eastern and southern areas with hot, dry summers and autumns (Hawke's Bay, Marlborough, Canterbury and Otago). The warm, humid summers of the western North Island encourage the growth of moulds that infect leaves and rot fruits.

Most eastern and southern vineyards require irrigation in summer.

## Soils

Grapevines for quality wine production generally do best on freely draining, low-fertility soils. However, New Zealand vineyards are planted on many soil types – ranging from Northland's heavy, water-retaining clay loams to the dry, stony silts of the Wairau Valley in Marlborough. In New Zealand, vines are grown on flat and gently sloping land at low altitudes – mostly with young soils of moderate to high fertility. This can lead to vigorous canopy growth at the expense of fruit production.

## Mildew Outbreaks

The 2014-2015 season saw challenging powdery mildew outbreaks in a number of regions. New Zealand Winegrowers initiated a fact-finding mission, with discussions centred around future research investigations, tech transfer and gaps in knowledge and management.

The topic was revisited in featured sessions at the 2015 Grape Day events and supported by a fact sheet outlining management guidelines to control epidemics.

## Labour Shortage

This was mentioned briefly above in the outline of the New Zealand Winegrowers and Deloitte survey, but I thought it'd be useful to give a broader outline as there's been quite a bit of press about it.

Seasonal peaks of harvesting and pruning can require thousands of additional workers nationally. Unemployment has fallen to record lows, and the dependence of the industry on itinerant New Zealand-based workers and overseas visitors has also increased.

Growers are finding it increasingly difficult to source good quality labour. Some large properties are investing in accommodation to attract seasonal workers.

New Zealand's Recognised Seasonal Employer scheme was established in 2007 to fly in workers for stints of harvesting work, primarily from the Pacific Islands.

The number of RSE workers is currently capped by Immigration New Zealand at 9,500.

Growers are complaining there are still not enough labourers:

*"We are challenged by a labour shortage and there are just not enough Kiwis available to meet the peak season demand."* Bostock operations manager Craig Treneman.

## The NZ wine industry and the Environment - sustainability

New Zealand's commitment to producing award-winning wines that reflect its landscapes and climate has driven the country's wine industry to become a world leader in sustainability.

Sustainability is considered as key to the on-going success of the industry as it preserves the quality of New Zealand's natural resources to enable the continued production of top-quality wine for generations to come.

Energy conservation and waste reduction initiatives are now engrained into the culture of wine production throughout New Zealand's 10 wine-making regions

### SWNZ programme

The New Zealand wine industry aims to be the first in the world to become 100% sustainable.

Introduced in 1995, Sustainable Winegrowers New Zealand (SWNZ) is a voluntary, industry-wide initiative developed to provide an environmental "best practice" model for both vineyard and winery. This framework of industry standards was set up to achieve this by vintage 2012.

The SWNZ programme now includes an estimated 94% of New Zealand's producing vineyard area which is, in turn, responsible for about 90% of the wine produced. In addition, another 3-5% of vineyard area operates under other certified organic programmes.

SWNZ provides a framework for companies to improve their performance in terms of environment, social, and economic sustainability, in both vineyard and winery. Members of the programme must adhere to "best practice" and all wine must be produced under independently-audited schemes.

Only winegrowers that comply with the programme are able to participate in key industry events such as the London Annual Trade Tasting and the Air New Zealand Wine Awards.

### Pernod Ricard

Sustainable winegrowing has also been actively embraced by Pernod Ricard, one of New Zealand's largest wine companies and the producer of top-selling labels including Church Road and Brancott Estate.

Pernod Ricard's sustainable practices to regulate irrigation and monitor pests and diseases in all of their vineyards throughout the country, have reduced water usage and cut costs of chemicals, labour, and machinery without compromising the quality of the grapes.

Encouragement of biodiversity in vineyards aided by the use of biological pest and disease deterrents to replace chemical spraying has also helped to improve soil structure for better vine quality and yields in the nursery.

The replanting of native flora by Pernod Ricard around Brancott Estate's Kaituna vineyard in Marlborough has even resulted in it becoming environmentally healthier than it was when first developed.

And New Zealand's pioneering heritage has fostered an innovative culture which has also helped to drive sustainable winegrowing. 'Falcons for Grapes' is a conservation programme that uses the endangered

native New Zealand falcon, the karakea, as a natural pest deterrent while providing the birds with a safe breeding environment. It is a scheme active on a number of Brancott vineyards in Marlborough, a region which produces close to 75% of New Zealand's export wines and the world's best Sauvignon Blanc.

## Yealands - Marlborough

Marlborough is also home to New Zealand's largest privately-owned and carbon neutral winery, Yealands Estate.

Set in the rolling foothills of the Awatere Valley, Yealands' commitment to a sustainable vision and values has driven its use of advanced green production technology and sparked many innovative green ideas.

Since the launch of its wines in August 2008, Yealands has collected many significant awards for conservation practice. Yealands runs a number of innovative sustainable initiatives including the use of grazing miniature 'babydoll' sheep instead of tractors to manage grass and weeds; and the development of more than 20 wetland areas to preserve native plant species and attract native birds.

Other sustainable production techniques at Yealands include the use of solar and wind power, heat recovery systems, waste recycling, and storm weather collection for irrigation.

This contributed to an estimated energy saving of 949,000kWh in Yealands' first year of operation, a sum that equates to the total annual energy consumption of more than 118 New Zealand households.

Yealands Estate operates a net zero carbon footprint that covers employee air travel and foreign port shipping. It is one of seven carbon neutral certified wineries in New Zealand.

# Key Contacts and Players

## Corbans Viticulture

Corbans Viticulture provides high-health grafted grapevines to the New Zealand vine industry. Corbans is one of the oldest and proudest names in NZ winemaking, with a history dating back to 1902.

Corbans holds a special place in New Zealand winemaking history and has long been recognised for its contribution to the development of modern viticulture and winemaking practices in New Zealand.

Key milestones which have confirmed Corbans at the forefront of the industry time and again include the first plantings of Chardonnay and the introduction of temperature-controlled fermentation in winemaking.



[info@corbans.co.nz](mailto:info@corbans.co.nz)

<http://www.corbansviticulture.co.nz/>

## The Organic Focus Vineyard Project

The Organic Focus Vineyard Project is documenting and demonstrating the realities of organic growing, in three major New Zealand wine regions.

For the years of the 2012, 2013 and 2014 vintages, Organic Winegrowers New Zealand, with funding from the Sustainable Farming Fund and New Zealand Winegrowers, conducted this three-year project to document and demonstrate the realities of organic production.

Three prominent wine companies, in three diverse growing regions – Wither Hills in Marlborough, Gibbston Valley Wines in Central Otago, and Mission Estate in Hawkes Bay – provided vineyard sites for the project. At each focus site, the vineyard was split into two side by side blocks: one to be managed according to standard industry practices, and the other to be converted to organic production. Each focus vineyard featured two grape varieties characteristic of its region.

Professional organic viticulture consultant Bart Arnst provided advice to the focus vineyard managers as they converted half of each focus vineyard site to organic management. Meanwhile, local conventional growers consulted to ensure that standard best practices were used on the conventional half of each focus vineyard, as appropriate to each region.

The project included a detailed monitoring program as well. Financial operating costs, pest and disease incidence, soil structural and biological health, soil moisture, grape yields, and fruit and wine quality are being monitored at all of the focus vineyards. Results of this monitoring provide direct comparisons between organic and conventional vineyards operating side by side. Independent research technicians from Fruition Horticulture and the National Centre for Sustainable Agricultural Technologies undertook the monitoring and data analysis in order to ensure reliability of the data collected.

<http://www.organicfocusvineyard.com/>

## Ormond Nurseries

Providing commercially proven clones at a competitive price. Their focus is producing premium grapevines certified to the NZWG Grafted Grapevine Standard.

Ormond Nurseries Ltd has operated for 34 years, specialising in propagating top quality, grafted grape plants that are true to type, fully traceable (budwood and rootstock) and regularly tested for Leaf Roll Virus.

t: 03 577 6354 e: [office@ormondnurseries.co.nz](mailto:office@ormondnurseries.co.nz) <http://ormondnurseries.co.nz/>

148 Rowley Crescent,  
Grovetown,  
Blenheim,  
New Zealand



## Riversun

Riversun is New Zealand's leading viticultural nursery, supplying certified grafted grapevines to many of this country's top vineyards.

Established in 1982, the Gisborne company has forged strong alliances with the New Zealand wine industry. Throughout its evolution, the nursery's goal has remained constant: to provide plant material that is true to type, of high health and known virus status, and produced to exacting physical specifications.

Riversun's vines are grafted to the New Zealand Winegrowers Grafted Grapevine Standard, developed in consultation with viticulture nurseries.

Riversun Nursery Limited  
PO Box 1199  
Gisborne, 4040  
New Zealand

Freephone: 0800 11 37 47  
Phone: +64 6 867 1120  
Fax: +64 6 867 8800

Email: [info@riversun.co.nz](mailto:info@riversun.co.nz)

<http://www.riversun.co.nz/>

## Stanmore Farm

Stanmore Farm nursery produces premium quality grafted grapevines for the New Zealand wine industry.

Their award winning grapevine nursery is recognised for producing high health vines with outstanding results in the vineyard.

Stanmore Farm supplies vines throughout New Zealand from Central Otago to Northland.

Stanmore Farm is located in Te Horo on the Kapiti Coast, New Zealand. The farm is nestled at the base of the Tararua foothills on a northwest facing slope. The climate is temperate and frost free. The soil is deep and fertile, thus providing the perfect growing conditions for many crops.

Contact: Tim Gibbs  
Phone: 0800 Stanmore or: 0800 782 666  
Mobile: 027 544 0140 Fax: 06 364 3172  
Address: 668 State Highway 1  
Te Horo  
Otaki 5581

<http://www.stanmorefarm.co.nz/>



## The Viticulture Practice

The Viticulture Practice is a vineyard management and contracting business based in the Marlborough winegrowing region of New Zealand.

The Viticulture Practice Ltd began operating in Marlborough in 2005 and since then has built up a base of satisfied customers.

Its client list includes the Marlborough vineyards of Mike Weersing's Pyramid Valley Wines; Konrad & Co. Wines; Mt Riley Wines; Kerner Estate, Whitehaven Wines and Clark Estate in the Awatere Valley.

The Viticulture Practice Ltd  
Marlborough,  
New Zealand.

ph 021 230 2348. email [lexthomson@vitpractice.co.nz](mailto:lexthomson@vitpractice.co.nz) <http://www.vitpractice.co.nz/>



## Vine Nursery New Zealand

VNNZ Produces Certified Grafted Grapevines for the New Zealand Wine Industry

<http://www.vinenursery.co.nz/>

## Vine to Wine to Market

Consultancy services for wineries, corporates, new entrants, and viticulturists in the grape and wine industry.

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Viticulturist

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Morag Fryer

Marketing and Business Development

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Vine to Wine to Market Limited

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Devonport

Auckland 0744

Phone (09) 445-4598 (message only)

Fax (09) 445-4396

## Worldwide Vineyards

More than 25 years international experience in top grafting of grape vines in Europe and throughout the world – now in New Zealand.

To date they have carried out several millions of top grafts in almost all wine producing countries and our clients include many of the most prestigious estates and properties in the sector. For some years, the company has also been marketing Grafting tools and Kits so that amateur grafters can learn these techniques.

T : +33 (0) 494 00 62 00

F : +33 (0) 494 57 37 74

E : [contact@worldwide-vineyards.com](mailto:contact@worldwide-vineyards.com)

[contact@worldwide-vineyards.com](mailto:contact@worldwide-vineyards.com) <http://www.worldwide-vineyards.com/en/>

## New Zealand Society for Viticulture and Oenology

The aim of New Zealand Society for Viticulture and Oenology is the promotion and dissemination of technical information in viticulture, oenology and related sciences for the benefits of the grape and wine industries of New Zealand.

Nick Sage - Executive Office

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## New Zealand Winegrowers

New Zealand Winegrowers is the national organisation for New Zealand's grape and wine sector. The organisation currently has approximately 850 grower members and 700 winery members.

New Zealand Winegrowers conducts a wide range of tasks on behalf of the grape and wine sector including:

- Advocacy at regional local and international levels
- Providing a global marketing platform for New Zealand wine
- Facilitating world-class research on industry priorities
- Giving the industry timely and strategic information
- Organising sector-wide events such as the Bragato Conference and Awards and the Air New Zealand Wine Awards.
- New Zealand Winegrowers was established in March 2002 as a joint initiative of the New Zealand Grape Growers Council, representing the interests of New Zealand's independent grapegrowers, and the Wine Institute of New Zealand, representing New Zealand wineries.
- New Zealand Winegrowers is governed by a Board of Directors of 12, comprising 7 representatives from the Wine Institute and 5 representatives from the Grape Growers Council. The parent bodies continue to operate as separate voting colleges and funders of New Zealand Winegrowers, although operational activities are conducted on a combined basis through the united organisation.

New Zealand Winegrowers is funded through: a levy on the sale of grapes collected by the Grape Growers Council under the Commodity Levies Act 1991; a levy on the sale of wine collected by the Wine Institute under the Wine Act 2003; as well as user pays activities and sponsorships.

Chief Executive Officer:  
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## Regional Winegrowing Associations

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[www.winehawkesbay.co.nz](http://www.winehawkesbay.co.nz)

Marlborough Winegrowers Assn Inc & Wine  
Marlborough Ltd  
Marcus Pickens  
+64 3 577 9299  
[marcus@wine-marlborough.co.nz](mailto:marcus@wine-marlborough.co.nz)  
[www.wine-marlborough.co.nz](http://www.wine-marlborough.co.nz)

Nelson Winegrowers Assn Inc & Wine Nelson  
Meg Matthews (Marketing)  
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[marketing@winenelson.co.nz](mailto:marketing@winenelson.co.nz)  
Jane Docherty (Admin)  
021 779 897  
[info@winenelson.co.nz](mailto:info@winenelson.co.nz)  
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Wairarapa Winegrowers Assn Inc  
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[info@wairarapawinegrowers.co.nz](mailto:info@wairarapawinegrowers.co.nz)

Central Otago Winegrowers Assn  
Natalie Wilson  
+64 3 445 4499  
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Gisborne Wine Growers Society Inc  
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Waipara Valley North Canterbury Winegrowers  
Gill Walsh  
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[admin@waiparawine.co.nz](mailto:admin@waiparawine.co.nz)  
[www.waiparavalleynz.com](http://www.waiparavalleynz.com)

Northern Winegrowers & Grapevine Improvement  
Assn Inc  
Stephen Nobilo  
+64 9 411 9982  
[nwgvig@xtra.co.nz](mailto:nwgvig@xtra.co.nz) or  
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Wines Of Canterbury Inc  
Gill Walsh  
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[gill.walsh@winesofcanterbury.co.nz](mailto:gill.walsh@winesofcanterbury.co.nz)  
[www.winesofcanterbury.co.nz](http://www.winesofcanterbury.co.nz)

# Aquaculture Industry

## Overview

Aquaculture is already the world's fastest growing primary industry and demand for aquaculture products is expected to strengthen significantly as the world's population grows and wild-catch levels remain relatively static. United Nations Food and Agricultural Organisation figures show aquaculture produces about 47% of seafood consumed globally by humans with production levels growing at a rate of approximately 6.3% annually for the past decade. Estimates suggest aquaculture will soon produce more seafood than wild fisheries.



It is one of the world's most efficient forms of food production and is considered a sustainable solution to feeding the world.

The New Zealand aquaculture industry has evolved from a group of innovative pioneers to a professional, specialised and premium food production sector focused on environmental sustainability, food safety and value-added marketing.

In 2011 the industry employed over 3000 Kiwis and generated over \$400 million of revenue.

Moving forward, the sector offers tremendous sustainable growth potential for New Zealand to create more regional jobs, support associated industries and inject much needed export earnings into local communities and the economy.

The New Zealand aquaculture industry has positioned itself at the high-end of the market, exporting premium seafood products around the world.

New Zealand aquaculture products are exported to 79 countries and considered among the world's best seafood.

The high quality of New Zealand coastal waters and the abundance of plankton, along with the prevalence of sheltered harbours and inlets create ideal conditions for aquaculture. Couple this with the pristine waters, world class environmental management practices and reputation for quality and food safety, and they are well-placed to capitalise on this food growing revolution with high value premium seafood products.

Of the \$400 million industry revenue, \$298 million was generated in exports. Sustainable growth in the sector will inject much needed export earnings into communities and the economy, generate more regional jobs and support a host of associated industries

Aquaculture is a relatively small industry by New Zealand standards, but is important in the economy because of the high level of employment and economic activity it generates in some key rural regions. Furthermore, the industry has shown strong sustained growth over the past 30 years, making it one of the fastest growing rural industries in New Zealand.

## Trends, Issues and Developments

### The New Zealand Aquaculture Strategy

During 2006 the New Zealand aquaculture industry went through a major strategic planning exercise which resulted in, The New Zealand Aquaculture Strategy. Through the planning exercise the industry set itself an overall growth target of US\$ 720 million of annual sales by 2025.

The strategy sets out ten areas of activity needed to facilitate achieving this growth target:

#### Establish a new national sector organization.

- At the end of 2006 the New Zealand Aquaculture Council Ltd was established as the peak body representing all aquaculture industry interests in the country, by uniting the fragmented operation of the smaller species and regional industry representative bodies.
- A chief executive officer has been appointed to lead the work of the new Council and to implement the growth strategy.

### Strengthen the partnership with government.

- Central and local government aspirations for aquaculture have remained unclear for many years. The intent is for the industry to work with government to provide greater clarity and support for their intentions for growing a vibrant aquaculture industry.

### Strengthen other stakeholder partnerships.

- Existing regional and species aquaculture industry representative bodies, as well as other groups, such as seafood industry, research providers and tertiary sector are to be encouraged to play a key role in advancing aquaculture by aligning their support with the interests of the industry.

### Secure and promote investment in aquaculture.

- Investment in aquaculture is critical to generating growth in this industry. However, establishing greater certainty and security for investors, particularly around sea space tenure, is required if the industry is to attract more investment.

### Improve public understanding and support for aquaculture.

- Greater public understanding and support for aquaculture is critical to achieving growth for the industry, particularly for accessing new sea space for aquaculture.

### Promote Maori success in aquaculture.

- Maori are major stakeholders in the aquaculture industry in New Zealand, however, their commercial and technical capabilities are variable, and in many instances will need some guidance and support to realize their full potential. A number of existing examples show that aquaculture can deliver economic and social benefits to rural Maori communities.

### Develop the market for New Zealand aquaculture products.

- Diversification in products and markets will be critical to better safeguard and grow New Zealand's aquaculture sector.

### Maximise opportunities for innovation.

- Growth of the New Zealand aquaculture industry to date has been based to a large extent of high levels of innovation. Continuing to foster the innovative environment will be critical to achieving further growth

### Invest in training, education and workforce promotion.

- A proactive approach to maintaining and up-skilling the workforce in the aquaculture sector will help to ensure it has the human capability to continue to grow.
- To implement this ambitious industry development strategy the New Zealand Aquaculture Council has introduced a levy on existing aquaculture producers.
- In addition, the New Zealand government has offered to contribute additional funding, with a particular focus on attempting to improve the operation of the regulatory regime for aquaculture introduced in 2005.

### Legislation and Administration

Marine farmers usually look for sheltered and unpolluted waters rich in nutrients. Often these areas are also desirable for other purposes. In the late 1990s, demand for coastal aquaculture space upsurged, increasing fivefold.

Aquaculture consents developed haphazardly, with regional councils unsure about how marine farms might impact coastal environments. By 2001, some councils were inundated with marine farm applications, and were operating with inadequate guidelines for sustainably managing the coast.

In 2002, the government stopped issuing consents for more new marine farms while they reformed the legislation. The consents had operated under a system overseen by both the Ministry of Fisheries and the regional councils.

The reforms aimed to streamline these applications for both freshwater and marine farms. Industry farmers objected to the moratorium, on the grounds that delaying expansion and diversification could not be in the interest of the industry.

Māori groups considered they were especially affected since they were the main applicants for coastal farms.

This took three years, and in early 2005, Parliament passed the Aquaculture Reform Act 2004, which introduced the new legislation. The act amends five existing acts to cope with the new environmental demands, and creates two new acts, the Māori Commercial Aquaculture Claims Settlement Act 2004 and the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004.[20] The legislation and administration of aquaculture in New Zealand is complex for such a small industry.

Despite many further consultations and incentives, no new aquaculture space was created under the new legislation for another four years. This coincided with a change in government at the end of 2008, which announced that the aquaculture reforms are to be overhauled.

## Role of Māori

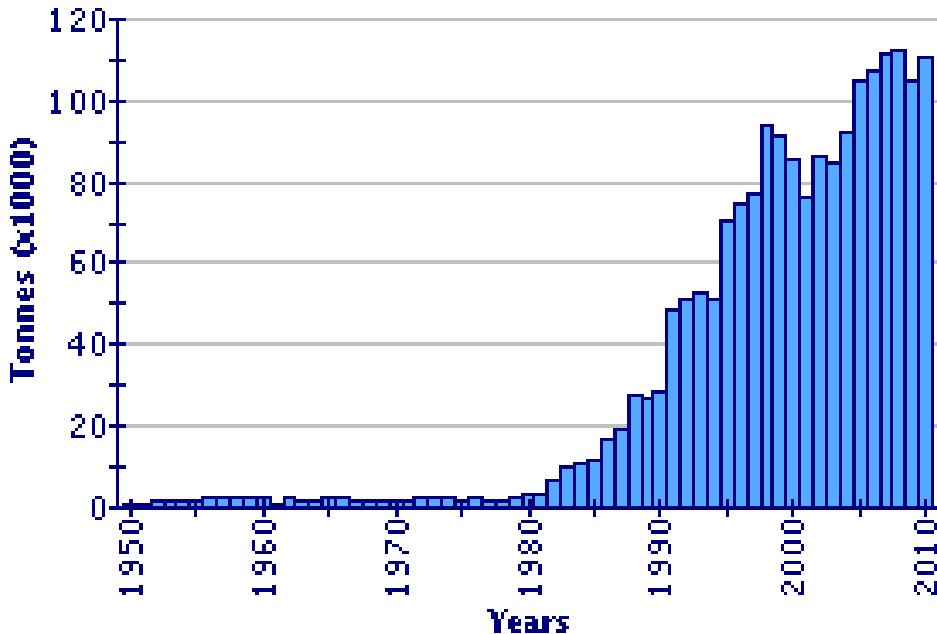
- In pre-European times, the indigenous Māori of New Zealand undertook rudimentary aquaculture activities, such as placing suitable rocks into the intertidal settlement zones of oyster larvae. They were also thought to have transplanted abalone and other shellfish between different areas.
- Māori currently have a significant presence in the New Zealand aquaculture industry, and this is likely to increase over time as the requirements to allocate aquaculture space through the Māori Commercial Aquaculture Claims Settlement Act 2004 are met. However, inappropriate aquaculture locations and unsustainable practices have the potential to compromise values and resources important to coastal whanau, hapu and iwi.
- In 2008, a settlement of \$97 million was made to Māori for Crown obligations for aquaculture space that was approved between 1992 and 2004.
- NIWA operates a Māori research and development unit, Te Kūwaha o Taihoro Nukurangi. The unit has a team of Māori scientists who undertake research and provide consultancy services, based particularly around iwi with environmental and commercial issues.

## Sector Performance

### Production

The graph below shows total aquaculture production in New Zealand according to FAO statistics:

Reported aquaculture production in New Zealand (from 1950)  
(FAO Fishery Statistic)



(Source: FAO Fishery Statistics, Aquaculture production)

### Market and trade

- In 2005 domestic sales of aquacultured New Zealand mussel were US\$ 30 million, king salmon US\$ 40 and Pacific oysters US\$ 9 (NZ Govt, 2007).
- Exports were US\$ 120 million for New Zealand mussel, US\$ 23 million for king salmon, and US\$ 12 million for Pacific oysters.
- New Zealand mussel are exported widely, but the USA remains the largest single export market buying US\$ 43 million in 2005, followed by Spain, Australia, South Korea and the U.K. (NZGovt, 2007). New Zealand mussel are mostly processed to a frozen half-shell product which is packed into either small retail, or larger food-service packs. New Zealand was a pioneer of the frozen-half shell mussel product and now accounts for 75 percent of world production of mussels in this format (Seafood International, 2007).
- Farmed king salmon was mostly exported to Japan US\$ 11 million in 2005, followed by Australia and USA (NZ Govt, 2007). This salmon is sold in a broad variety of product forms, including value-added products, such as smoked slices fish kebabs, and nibbles.
- The single largest export destination for Pacific oysters from New Zealand in 2005 was Australia (US\$ 5 million), followed by Japan and the USA (NZ Govt, 2007). These markets were mostly supplied with fresh or frozen half-shell oysters.
- New Zealand operates very rigorous human health monitoring programmes for aquaculture production, especially for shellfish. In particular, in 1980 New Zealand signed a memorandum of understanding was signed between the United States Food and Drug Administration (USFDA) to provide quality assurance on exports of bivalves to the United States (NZFSA, 2007). As a consequence, New Zealand now requires that aquaculture bivalves are transported, processed and labelled in accordance with the USFDA National

Shellfish Sanitation Programme (NSSP).

- New Zealand's largest processor and supplier of New Zealand mussel was one of the first producers in the world to be organically certified. The mussels were certified by a respected New Zealand certifying agency, Bio-Gro. A number of oyster farms have also now been certified as organic producers, as well as a king salmon farm.

## Environmental Sustainability

New Zealand has a strong environmental ethos, in part due to traditional Maori beliefs about natural resources. Naturally high quality coastal waters have enabled the aquaculture industry to thrive and reliably produce superior products without major constraints from pollution hazards. Therefore, ensuring the continuation of environmentally sustainable growth of aquaculture will be critical to the future of the industry.

New Zealand marine farmers continually push the boundaries of global best practice in environmental sustainability to meet the growing global demand for safe, healthy seafood products.

For each species, industry has developed specific Environmental Codes of Practice to direct best industry practices throughout growing and harvesting to minimise potential effects on the environment.

Every marine farm must have a permit to legally operate in New Zealand. The consent process is managed by Regional Councils to provide a planned, controlled approach to the allocation of water space for aquaculture.

Consent conditions associated with the permits are set by Regional Councils to ensure a 'no more than acceptable' level of ecological impact occurs due to aquaculture related activities.

Councils are required to monitor compliance with these conditions on a regular basis and ensure all aquaculture practices are being carried out in a sustainable manner

The planning and approval process for marine aquaculture in New Zealand considers the farm's potential environmental effects, as well as its possible cultural and social effects.

Aquaculture must comply with the Resource Management Act. The Act encourages New Zealanders (as communities and as individuals) to plan for the future of our environment in a sustainable way.

## Environmental Concerns

Past experience shows that sometimes, when aquaculture is initiated, it has been unable to maintain the desired quality in the water or sedimentary environments.

On a global scale, the most common causes of environmental concern include:

- nutrient enrichment: the release of nutrients through uneaten food, faeces, pseudo-faeces and dissolved metabolites to the sediment and water column.
- habitat change and loss: changes in seabed or river bottom habitats due to the accumulation of organic matter or other waste; or the loss of habitat due to modifications of coastal land and wetland to meet the requirements of coastal aquaculture.
- impacts on wild fish and shellfish populations: the escape of farmed fish and their subsequent interbreeding with wild fish; introduction of exotic species (including disease and parasites); increased abundance of pathogens.
- chemical pollution: primarily related to release of therapeutic chemicals used in the treatment of disease, including parasitic infections.
- secondary impacts on other production systems: social, economic and environmental consequences arising from increased demand for inputs (goods and services) such as fish meal, or transportation.



## Fish Farms

- Like a giant aquarium, land-based fish farms must change their tanks' dirty water. Depending on the system's set-up, this can result in the discharge of significant amounts of wastewater containing feces, nutrients and chemicals into the environment. Nutrients can result in algae blooms which eventually remove dissolved oxygen in the receiving waterway, or eutrophication. A zero oxygen content results in fish kills.
- In addition, chemicals are commonly used in the aquaculture industry, such as antibiotics and water treatment agents. Aquaculture systems should be closed, or its wastewater treated prior to discharge.

## Fish feed requirements

- Farmed carnivorous fish, such as salmon, require a food source which is high in fish-derived proteins. This generally comes from wild capture fish at the bottom of the food chain, which are not usually marketed for human consumption. There are two key challenges to developing a sustainable aquaculture industry. The first is to find a source of food for the farms which does not depend exclusively on wild fish being caught. The second is to ensure that any wild fish used as feed is caught in a sustainable manner. This is because removal of these species low in the food chain can have serious implications for fish stocks, the foodweb and other wildlife including sea mammals and seabirds.

## Other Issues and Challenges

- New Zealand's aquaculture industry today has three mature sectors - mussels, oysters and salmon - and a range of other sectors at varying stages of development. Constraints to growth are the key challenges. Broadly speaking, the industry is meeting these challenges through attempts to access new water space and by generating greater value from the existing water space

## Allocation Issues

- With increasing demand for coastal marine space and resources across a range of activities and values, the allocation difficulties are intensifying. It can be hard to establish new uses such as aquaculture, even if they are the highest value use, if they will affect other values or existing uses. Other interests can be squeezed out by activities such as marinas and marine farms that require exclusive use of space. These allocation difficulties can discourage investment and economic growth and can result in unnecessary costs.

## Fights over space

The Government plans to turn aquaculture into a \$1 billion industry. Many argue that, whilst this is a noble goal, there are only a few places suitable for intensive aquaculture in New Zealand. In the past locals in Marlborough Sounds have been embroiled in spats over increasing the space for King Salmon farms.

As one writer commented:

On land, the way we plan is fairly straightforward. The government makes sure we have some parks and sets some environmental standards, then the market more or less sorts out the best way to use the land through the owners trading among themselves.

In the ocean, all this is turned on its head. The ocean is a "commons", so no-one owns it. Companies have an incentive to claim as much of it as possible, in the hope that it eventually becomes their property, while members of the public oppose everything as a matter of course, because it curtails their rights to use the ocean for recreation and fishing.

Meanwhile, any thought of reserves or environmental protection languishes in the middle, caught as the leftovers between an adversarial process.

# Key Players and Contacts

## Seafood Industry Training Organization

In recent years, skill levels in the New Zealand aquaculture industry has considerably improved. This has been largely due to Seafood Industry Training Organization (SITO), an integral part of the seafood industry. SITO have developed tailored aquaculture training programmes based on their prior experience with industry-based training for wild fisheries. They now offer nationally recognised training programmes based on the needs of companies involved in aquaculture

Seafood Industry Training Organization (SITO)

ITO House, Level 2

180-188 Taranaki Street

Wellington

Phone (04) 801 9616

Email: [info@primaryito.ac.nz](mailto:info@primaryito.ac.nz) <https://primaryito.ac.nz/>

## New Zealand Aquaculture Council Inc

An incorporated society representing on an 'as needs basis' the collective aquaculture interests of the New Zealand aquaculture industry.

Aquaculture New Zealand

Level 1 Wakatu House

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Nelson, 7010

New Zealand

Tel: (03) 548 8944 Fax: (03) 548 8984

Email: [info@aquaculture.org.nz](mailto:info@aquaculture.org.nz) <http://www.aquaculture.org.nz/>

## The Marine Farming Association

The Marine Farming Association has been set up with the objective to promote, foster, advance, encourage, aid and develop the rights and interests of its members and the marine farming industry in general. Marine Farming Association

Marine Farming Association Inc.

PO Box 86 Blenheim

New Zealand

Phone: 03 578 5044

Fax: 03 578 5046

Email: [info@marinefarming.co.nz](mailto:info@marinefarming.co.nz)

<http://www.marinefarming.co.nz/default.asp>

## New Zealand Marine Sciences Society

The New Zealand Marine Sciences Society, known as "NZMSS", was formed in 1960 as a constituent society of New Zealand's Royal Society, to encourage and assist marine science and related research across a wide range of disciplines in New Zealand and to foster communication among those with an interest in marine science

Dr Mary Livingston – President

Phone 021 380 301

email [mary.livingston@mpi.govt.nz](mailto:mary.livingston@mpi.govt.nz).

<http://nzmsp.org/>

## Ministry for Primary Industries

MPI is a new ministry formed from the merger of the Ministry of Agriculture and Forestry, the Ministry of Fisheries and the New Zealand Food Safety Authority.

## New Zealand Seafood Industry

The New Zealand Seafood Industry Council promotes the interests of all sectors of the fishing industry. Providing economic information and advice, co-ordination of industry resources, and enhancement of the industry's profile in the community.

## The New Zealand King Salmon Company Ltd

The company dominates the production of king salmon in New Zealand. The company has a very well developed selective breeding programme which is well integrated with its quality control and production systems. Other salmon producers rely on stock from hatcheries where there is less well developed, or no selective breeding of stock. The majority of fish are grown out in marine sea cages in coastal waters, with a small proportion grown out in freshwater – mostly in canals build for channeling river water for hydroelectricity production. There is a small amount of feed production in New Zealand, however, the bulk of the feed supplies are imported directly from manufacturers in Australia.

Phone: 03 548 5714 Fax: 03 538 0874 Email: [contact@kingsalmon.co.nz](mailto:contact@kingsalmon.co.nz)

### Postal Address:

P O Box 1180  
Nelson 7040  
New Zealand

### Head Office Physical Address:

93 Beatty Street  
Tahunanui  
Nelson 7011  
New Zealand

<http://www.kingsalmon.co.nz/>

## Sealord

- Sealord is a proud New Zealand company and the country's best known seafood brand
- With fishing operations in New Zealand and Australia we're one of the largest seafood companies in the Southern Hemisphere
- Established in 1961, in Nelson, Sealord is half owned by the Maori people of New Zealand, through Aotearoa Fisheries Ltd, and half owned by global seafood company Nippon Suisan Kaisha, Ltd (Nissui).

PO Box 62545  
Greenlane  
Auckland 1546  
New Zealand

Phone 09 589 5359

<http://www.sealord.com/nz/our-business/our-business/>

## Resources and Further Reading

<http://www.teara.govt.nz/en/viticulture/page-1>

[http://www.seafish.org/media/636879/eacgsept2012\\_anewzealandstory.pdf](http://www.seafish.org/media/636879/eacgsept2012_anewzealandstory.pdf)

<http://www.aquaculture.org.nz/wp-content/uploads/2011/06/FAOenvrisk-2008.pdf>

<http://www.pwc.co.nz/KenticoFiles/b5/b5321daa-1c69-4e1e-8791-e99ea887cc2b.pdf>

[http://www.nzherald.co.nz/business/news/article.cfm?c\\_id=3&objectid=11591534](http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11591534)

[http://www.fao.org/fishery/countrysector/naso\\_newzealand/en](http://www.fao.org/fishery/countrysector/naso_newzealand/en)

<http://www.stuff.co.nz/business/farming/aquaculture/69403397/Scallop-industry-to-challenge-marine-farm-decision>

<http://www.cawthron.org.nz/coastal-freshwater/news/2014/scientists-investigate-challenges-facing-marine-environment/>

<http://www.fish.govt.nz/en-nz/Commercial/Aquaculture/default.htm>

<http://winetechnology.co.nz/resource/issues-facing-the-nz-wine-industry-a-wine-industry-insight/>

Practical management of grapevine trunk diseases. M Sosnowski (SARDI) and D Mundy (Plant and Food Research)

[http://www.coriolisresearch.com/pdfs/coriolis\\_overview\\_new\\_zealand\\_wine\\_industry\\_may2006.pdf](http://www.coriolisresearch.com/pdfs/coriolis_overview_new_zealand_wine_industry_may2006.pdf)

<https://www.bayleys.co.nz/media/93d74f45-0e65-49f8-80fe-5cddcfa038f2>

<http://www.singaporewinevault.com/blog/uncorking-new-zealand-exploring-the-country-s-world-class-viticulture>

[http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Wine%20Annual\\_Wellington\\_New%20Zealand\\_4-14-2015.pdf](http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Wine%20Annual_Wellington_New%20Zealand_4-14-2015.pdf)

<http://www.aquaculture.org.nz/environment/sustainability/>

<http://www.cawthron.org.nz/coastal-freshwater/news/2014/scientists-investigate-challenges-facing-marine-environment/>

<http://www.stuff.co.nz/business/farming/agribusiness/76883555/Short-term-struggle-to-find-apple-pickers-prompts-long-term-industry-fears>

<https://www.nzte.govt.nz/en/export/market-research/wine/wine-in-china/>

<http://rstb.royalsocietypublishing.org/content/365/1554/2897>

[Cawthron Institute](#)

[Department of Conservation, New Zealand](#)

[FAO FishStatJ – Universal software for fishery statistical time series](#)

[Ministry of Economic Development, New Zealand](#)

[Ministry of Fisheries, New Zealand](#)

[National Institute of Water and Atmospheric Research \(NIWA\)](#)

[New Zealand Aquaculture Council \(NZAC\)](#)

[New Zealand Aquaculture Magazine](#)

[New Zealand Food Safety Authority \(NZFSA\)](#)

[New Zealand King Salmon Company Ltd \(NZKS\)](#)

[New Zealand Marine Farmers Association](#)

[New Zealand Mussel Industry Council Ltd](#)

[New Zealand Salmon Farmers' Association](#)

[New Zealand Seafood Council](#)



[New Zealand Trade and Enterprise Department](#)

[Resource Management Act \(RMA\)](#)

[Seafood Industry Training Organisation.](#)

[Te Puni Kokiri \(Ministry of Maori Development\), New Zealand](#)

[University of Auckland](#)

<http://www.nzwine.com/assets/sm/upload/bh/ph/9b/95/NZW%20Annual%20Report%202015.pdf>

[https://www.was.org/documents/MeetingPresentations/WA2009/WA2009\\_0605.pdf](https://www.was.org/documents/MeetingPresentations/WA2009/WA2009_0605.pdf)

<http://www.stuff.co.nz/dominion-post/comment/6841914/We-need-a-game-plan-for-aquaculture>

<http://www.singaporewinevault.com/blog/uncorking-new-zealand-exploring-the-country-s-world-class-viticulture>