

# *Fresh*Facts

NEW ZEALAND HORTICULTURE

2015



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Reporting basis: unless stated otherwise, all statistics are for the year ending 30 June 2015 and expressed as \$NZ. Exports are given as free-on-board (fob) values. Imports are given as cost, insurance and freight included (CIF). Historical values have not been adjusted for inflation.

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Cover image: Asian markets are proving fruitful for cherry growers with record sales into Taiwan, China and South Korea. Exports rose from \$28 million in 2013/14, to \$52.2 million in 2014/15 on top of record domestic consumption.



## New Zealand horticulture – hitting its targets

*In 2010, Horticulture New Zealand announced its goal to become a \$10 billion industry by 2020. Halfway toward the 2020 deadline, horticultural exports are growing strongly and delivering on that strategy.*

*Horticultural exports increased 9.5% in 2015 to a record \$4.3 billion, with productivity, new cultivars, strong branding and marketing all helping New Zealand's fresh produce capture premiums in world markets.*

*2015 marked a major milestone in the kiwifruit industry's fight against Psa disease, with exports back to pre-Psa values, increasing by \$251 million to \$1.2 billion, and back on track to meet Zespri's goal of \$3 billion by 2025.*

*After surpassing \$500 million for the first time last year, apple exports continued to grow, up \$25 million to \$562 million in 2015, and on track for that industry's export target of \$1 billion by 2020.*

*New Zealand's success as a fresh produce exporter continues to be the result of hard work and clever thinking. Our growers are smart and industrious, our science and innovation is world leading, and our understanding of key global markets ensures that our premium produce earns a premium price.*

*Plant & Food Research is proud to support the horticultural industry, working together to overcome challenges and capture new opportunities to add and sustain value for the industry and for New Zealand.*

Peter Landon-Lane  
CEO, Plant & Food Research



# Exports/imports

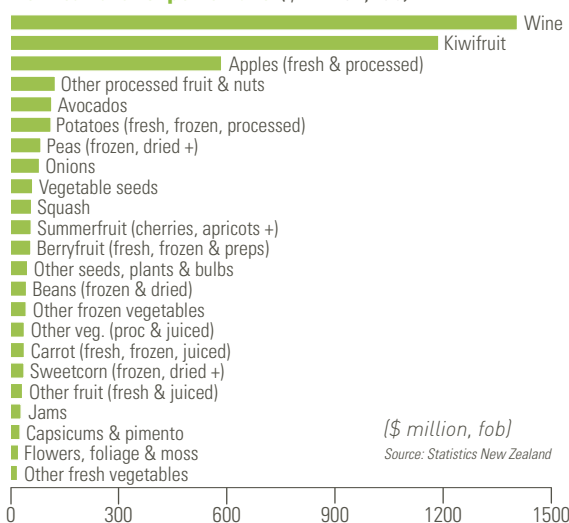
## Horticultural exports, year ended June (\$ million, fob)

	1985 <sup>a</sup>	1995 <sup>b</sup>	2005 <sup>b</sup>	2010 <sup>b</sup>	2014 <sup>b</sup>	2015 <sup>b</sup>
Fresh fruit						
- Apples	108.2	343.6	387.0	324.6	536.4	561.8
- Kiwifruit	171.9	320.8	720.2	995.7	930.5	1,181.9
- Avocados	n/a	n/a	29.0	59.9	93.0	115.5
- Other fresh fruit	28.4	57.6	51.5	74.7	96.4	122.9
<b>Total fresh fruit</b>	<b>308.5</b>	<b>722.0</b>	<b>1,187.7</b>	<b>1,454.9</b>	<b>1,656.3</b>	<b>1,982.1</b>
Processed fruit						
- Wine	3.0	42.0	432.7	1,036.8	1,321.4	1,406.2
- Fruit juices	9.6	30.5	34.5	31.7	54.6	46.5
- Jams	n/a	n/a	18.1	48.4	25.8	29.9
- Other processed fruit	40.3	44.3	49.2	75.1	91.0	84.7
<b>Total processed fruit</b>	<b>52.9</b>	<b>116.8</b>	<b>534.5</b>	<b>1,192.0</b>	<b>1,492.8</b>	<b>1,567.3</b>
Fresh vegetables						
- Onions	17.7	92.6	61.6	113.4	97.1	81.5
- Squash	14.6	57.7	72.1	53.2	45.9	58.7
- Other fresh vegetables	11.6	49.8	66.3	81.1	78.0	75.8
<b>Total fresh vegetables</b>	<b>43.9</b>	<b>200.1</b>	<b>200.0</b>	<b>247.7</b>	<b>221.0</b>	<b>216.0</b>
Processed vegetables (frozen/dried/other processes)						
- Peas	22.0	34.3	36.9	72.9	79.8	84.8
- Potatoes		14.1	56.9	82.0	105.4	92.5
- Sweetcorn	9.5	30.6	43.4	38.0	38.3	38.5
- Mixed vegetables (frozen)	4.6	23.9	36.0	36.1	38.8	34.2
- Other vegetables (frozen)			16.4	16.4	22.7	21.2
- Other vegetables (dried)			25.5	8.4	7.8	7.8
- Vegetable juices			6.6	19.4	32.1	30.3
- Other processed vegetables	20.9	75.6	42.6	47.9	64.0	65.8
<b>Total processed vegetables</b>	<b>57.0</b>	<b>178.5</b>	<b>264.3</b>	<b>321.1</b>	<b>388.9</b>	<b>375.1</b>
Other horticultural exports						
Flowers & foliage	10.5	49.9	38.5	35.1	26.6	22.9
Vegetable seeds	n/a	n/a	30.2	57.4	66.2	62.2
Seeds, plants & bulbs etc.	2.1	17.4	42.1	41.3	45.2	43.7
Sphagnum moss	6.3	17.3	8.8	6.1	4.3	4.3*
<b>Total other horticultural exports</b>	<b>18.9</b>	<b>84.6</b>	<b>119.6</b>	<b>139.9</b>	<b>142.3</b>	<b>133.1</b>
<b>Total exports in current \$</b>	<b>481.2</b>	<b>1,302.0</b>	<b>2,306.1</b>	<b>3,355.6</b>	<b>3,901.3</b>	<b>4,273.6</b>
Horticultural exports						
as % of NZ merchandise exports	4.4	7.0	7.5	8.3	7.6	8.8

Source: <sup>a</sup>Bollard (1996) <sup>b</sup>Statistics New Zealand \*Estimate

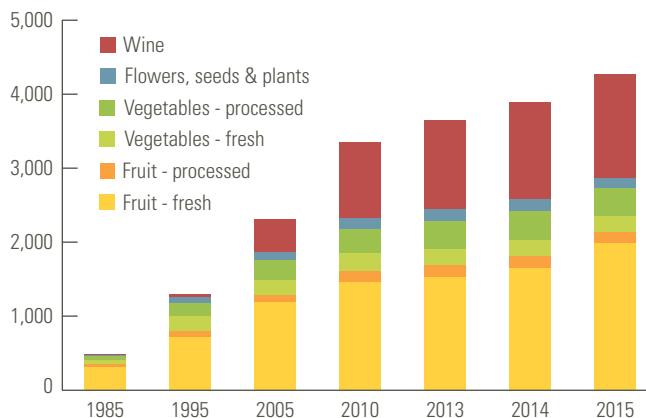
- The value of New Zealand's horticultural outputs exceeded \$7.5 billion for the first time, with export sales of \$4.27 billion and the value of domestic horticultural products calculated to exceed \$3.24 billion.
- Increased export values of greater than \$10m were in kiwifruit (+\$251m/+27%), wine (+\$85m/+6%), apples (+\$25m/+5%), cherries (+\$24m/+87%), and avocados (+\$22m/+22%).
- Four fruit crops (apples, kiwifruit, avocados and wine) accounted for \$3.265b of exports and four vegetable crops (onions, squash, peas, potatoes) plus vegetable seeds totalled \$380m. Collectively these nine crop types were 85% of New Zealand's 2015 horticultural exports and by value 7.5% of New Zealand's total merchandise exports.
- Vegetable exports remained at close to \$600 million; onions \$81.4m (2014 \$97.1m), frozen potatoes \$74.3m (\$86.3m), squash \$58.7m (\$45.9m), frozen peas \$51.5m (\$52.2m). These four products accounted for 45% of total vegetable exports.

## Horticultural exports 2015 (\$ million, fob)



- Export performance 2015 in New Zealand's five largest horticultural export market regions (compared with 2014):
  - **Asia: \$1.434 billion:** increased \$260m (+22%); apples +\$40m, cherries +\$23m and squash +\$14m. Onion exports down \$7m (18%)
  - **Australia \$826m:** down \$46m (-5%); avocados +\$10m, kiwifruit +\$8m, blueberries +\$6m; wine down \$30m;
  - **North America: \$642m:** increased \$53m (+9%); wine +\$60m, kiwifruit +\$12m; apples down \$14m
  - **Continental Europe \$632m:** increased \$32m; kiwifruit +\$44m; wine +\$13m; apple down \$23m (17%)
  - **United Kingdom & Ireland: \$525m:** increased \$107m (+25%); wine and apples both increased by \$36m.

## Horticultural exports – Years to June (\$ million, fob)



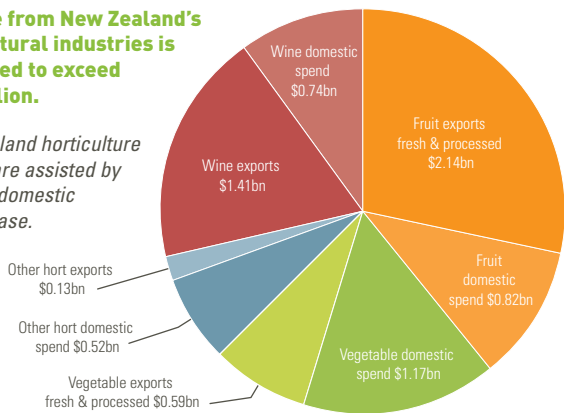
Source: Statistics New Zealand

# Exports/imports



**Produce from New Zealand's horticultural industries is calculated to exceed \$7.5 billion.**

*New Zealand horticulture exports are assisted by a strong domestic market base.*



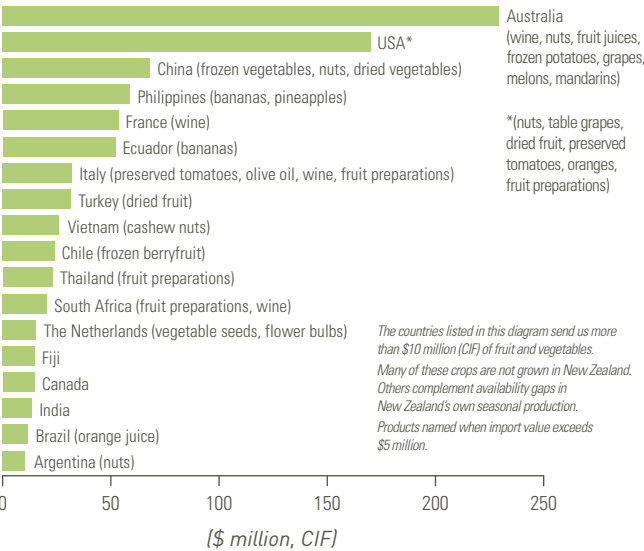
Source: Statistics New Zealand merchandise exports, with domestic market figures derived from the triennial Household Economic Survey (HES) 2013 and StatsNZ estimate of mean number of private dwellings at 30 June 2015.

## Top 10 export destinations (\$ million, fob)

	2005	2014	2015	
Australia	335	872	826	Wine, avocados, potatoes, processed veg, kiwifruit, beans, honey, peas, blueberries, jams, fruit preparations, sweetcorn, fermented beverages, apple juice, capsicums
USA	232	489	525	Wine, apples, kiwifruit, honey
Japan	472	445	480	Kiwifruit, squash, veg-juice, frozen veg, capsicums, honey, sweetcorn, wine
UK	288	398	445	Wine, apples, honey
China	15	175	305	Kiwifruit, apples, honey, wine, cherries
EU (centralised distribution)	240	247	263	Kiwifruit, apples
Taiwan	76	132	178	Kiwifruit, apples, cherries
Canada	24	99	117	Wine, apples
Netherlands	116	108	107	Apples, wine, other veg, onions, seeds-carrot
Spain	82	76	91	Kiwifruit

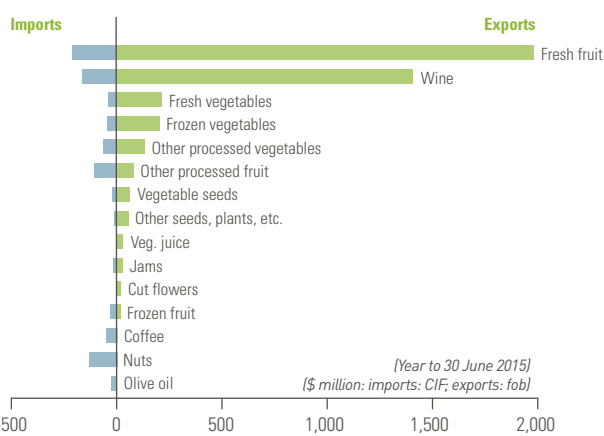
Products listed in descending order of exports and when the value to the destination exceeded \$10 million fob. Consistent with other entries in Fresh Facts, honey exports are not included in totals. Source: Statistics New Zealand.

## The origin of fruit and vegetable imports, 2015



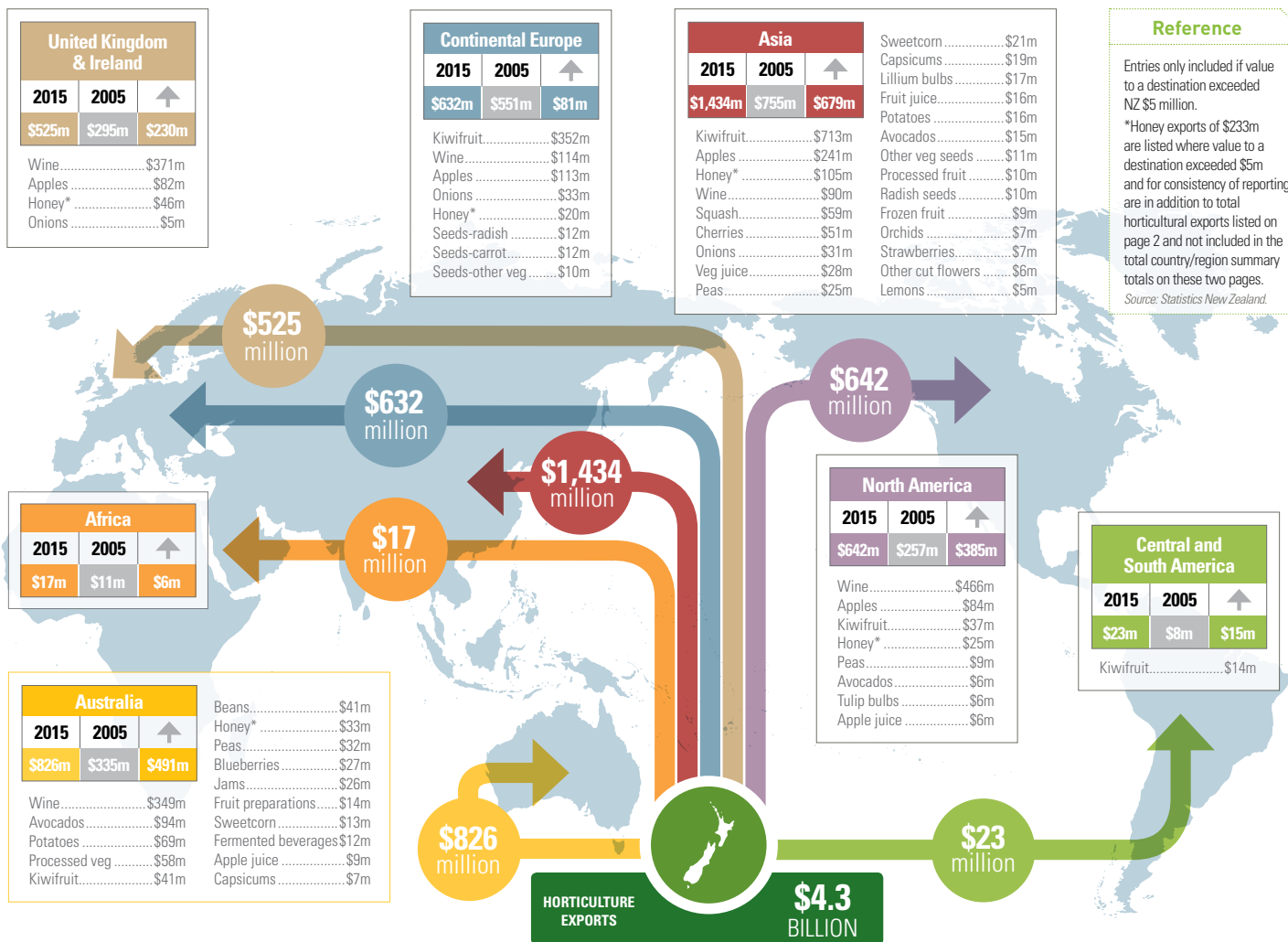
Source: Statistics New Zealand; Overseas Trade statistics for year ended June 2015.

## Comparisons of imports and exports 2015 (\$ million)



Source: Statistics New Zealand; Overseas Trade statistics

# Export destinations



## Horticulture helps build New Zealand's profile in many overseas markets.

### Export destinations for New Zealand horticultural products – trends since 2005 (\$ million, fob)

- Fruit, vegetables and flowers were exported to 125 countries in 2015. In 2005 New Zealand horticultural produce was exported to 108 countries.
- Exports to 29 countries exceeded \$10 million (fob) in 2015, up from 19 countries in 2005.
- New Zealand also earned \$90m from horticultural machinery and components exports and additional income from royalties and licence agreements.

### Trends

- In 2015 New Zealand fruit and vegetable exports to five markets exceeded \$300m (fob) value: Australia, the USA, Japan, the UK and, for the first time, China. These five export markets accounted for over \$2.58 billion, an increase of \$130 million on 2014 and 60% of New Zealand's total horticultural exports in 2015.
- Exports to three other countries exceeded \$100 million: The Netherlands, Taiwan and Canada. Horticultural exports to 21 other countries exceeded \$10 million, of which eight countries are in Asia/South East Asia and eight in Continental Europe.
- The diversity of horticultural products exported is evident in the 23 product groups exported to Asia each between \$5m and over \$700m, and to Australia 15 product groups each between \$7m and \$350m (fob) value.

Source: Statistics New Zealand

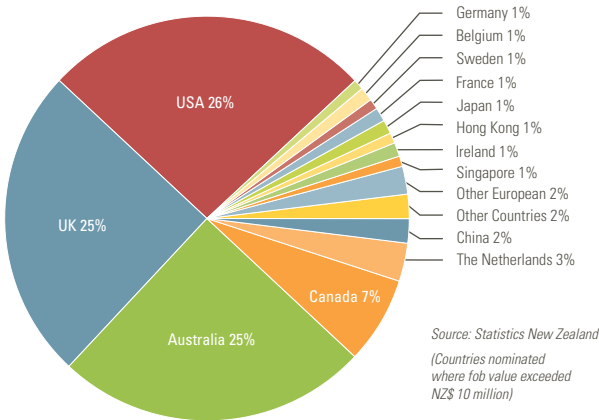
Grape and wine production 2010 & 2015

Variety	Production area (ha)		Production (tonnes)	
	2010	2015	2010	2015
Sauvignon blanc	16,910	20,266	174,247	216,078
Pinot noir	4,773	5,564	23,655	25,763
Chardonnay	3,865	3,361	26,322	27,015
Pinot gris	1,763	2,456	12,810	19,707
Merlot	1,371	1,320	8,885	9,397
Reisling	986	777	5,416	4,535
Gewurtztraminer	314	367	1,556	1,761
Syrah	297	435	2,112	1,497
Cabernet Sauvignon	519	300	2,203	1,376
Muscat varieties	125	37	793	301
Other white vinifera	382	120	3,194	2,935
Other red vinifera	392	291	2,382	2,022
Unknown & hybrids/other	1,731	565	2,425	13,613
Total	33,428	35,859	266,000	326,000

Region				
Auckland/Northland	550	398	1,503	1,027
Waikato/Bay of Plenty	147	24	118	ND
Gisborne	2,083	1,914	18,316	17,280
Hawke's Bay	4,947	4,773	38,860	36,057
Wairarapa	871	1,006	3,942	3,559
Marlborough	19,295	23,203	182,658	233,182
Nelson	842	1,139	5,963	6,777
Canterbury/Waipara	1,779	1,451	5,870	5,395
Otago	1,540	1,951	6,196	8,951
Other and unknown	1,374	0	2,574	13,772
Total	33,428	35,859	266,000	326,000

Source: New Zealand Winegrowers Annual Report 2015. ND: No data

Wine exports by country 2015 (% by value)



→ 89% of New Zealand produced wine was in four varieties: Sauvignon blanc 66%, Pinot noir 8%, Chardonnay 8%, Pinot gris 6%, although more than 17 other varieties were produced. 12% of New Zealand wine grapes were red vinifera.

Growth in wine exports and wineries 2005 to 2014



Sources: New Zealand Winegrowers Annual Report 2015

- The 326,000 tonnes of wine grapes crushed in 2015 was less than the 2011 to 2015 average of 342,600t and less than the 2014 record year of 445,000t.
- Average yield of 9.1t/ha was the average for the decade 2006 to 2015, but 3.5 t/ha below the 12.6t/ha record year of 2014.
- In 2015 three markets, the USA, the UK and Australia accounted for 76% of New Zealand wine exports by value with exports of between \$350m and \$370m fob each.
- Export volume was 209 million litres and domestic consumption of New Zealand wine was estimated at 62m litres. 34.5m litres of wine were imported in 2015 (74% from France), total wine imports being 15% less than the 40.7m litres imported in 2014.
- Winery numbers at 673 in 2015 was almost the same as 2010 (672), but 26 less than 2014.

Are microbes the key to geographical differences in wine?



Classically the reason that wine, and other agricultural crops such as coffee, from different places tastes and smells differently was thought to be due to a range of environmental reasons, such as climate and soil minerals. The idea that organisms such as microbes played a role in this was not appreciated until very recently. A new study by scientists at The University of Auckland as part of the Plant & Food Research and New Zealand Winegrowers wine research programme examined six of New Zealand's major wine-growing regions, and found that differences in flavour and aroma of wines from different areas may depend more on microbes than was previously thought.

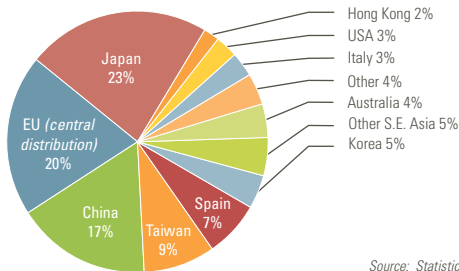


Kiwifruit industry: Zespri Group Ltd  
New Zealand grower and chain statistics to 2015

Season (ends 31 March)	2000	2005	2010	2014	2015
Crop volumes (million)					
Trays submitted*	54.2	85.8	107.0	87.8	97.8
Trays sold	51.8	79.7	96.5	86.1	95.2
General Statistics					
Yield (trays/ha)	5,295	7,847	8,546	8,023	8,706
Area planted <sup>†</sup> (ha)	10,234	10,934	12,525	10,944	11,233
Growers/suppliers <sup>‡</sup> (no)	2,681	2,760	2,711	2,350	2,540
Packhouses (no)	118	88	71	54	50
Coolstores (no)	106	89	77	68	62
Orchard Gate Return (\$/ha)	15,366	34,738	39,142	51,153	57,369

\*A tray weighs 3.6 kg. <sup>†</sup> Producing hectares <sup>‡</sup> Refers to number of submitters  
Source: Zespri International Ltd Annual Review 2015.

New Zealand kiwifruit export markets (year to 30 June 2015)



Source: Statistics New Zealand

- The value of New Zealand kiwifruit exports in 2015 at \$1.182 billion fob was 27% above 2014 and the average value of \$973m for the previous five years.
- In 2015, New Zealand produced kiwifruit was exported to 50 countries, three of which imported more than \$100m (all in Asia: Japan \$275m; China \$200m, Taiwan \$101m), and a further six imported an average of \$45m each.
- There was a rebound in gold-fleshed kiwifruit production in 2015 amounting to 19% of Zespri's total New Zealand crop and driven by new variety SunGold®. Zespri, the dominant kiwifruit export organisation, believes New Zealand has emerged from much of the impact of the bacterial canker disease specific to kiwifruit, *Pseudomonas syringae* pv. *actinidiae* (Psa).
- In 2015 more than \$10m was invested by Zespri, Plant & Food Research and the New Zealand Government in what Zespri describes as the world's largest kiwifruit breeding programme, where new kiwifruit selections are in pre-commercial trials and could be introduced if they meet requirements for taste, yield, size and storage, Psa tolerance, health attributes and consumer response.
- The average orchard gate return of over \$57,000 reported by Zespri was due to the average yield being above 31 tonnes per hectare and increased international demand in part resulting from a shortage of competing Chilean kiwifruit because of a severe frost event in Chile.
- In addition to New Zealand production of 342,700 tonnes (2014: 310,000t), under its Zespri Global Supply initiative, Zespri procured a further 47,500t (2014: 40,300t) from contracted producers in Italy, France, Korea, Japan, and Australia to maintain year-round availability of its brand.

Sources: Zespri International, StatsNZ

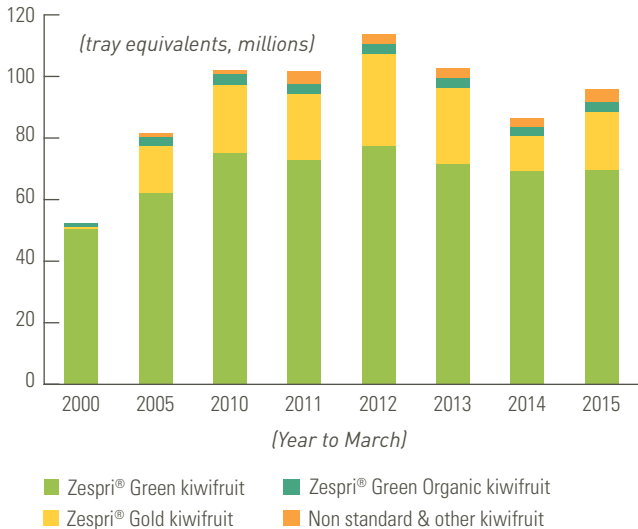
The export growth of Zespri SunGold®



Zespri SunGold® Kiwifruit is a product of the Zespri-Plant & Food Research kiwifruit breeding programme and is on track to earn \$1 billion in sales revenue by 2017. SunGold's Psa tolerance combined with its commercial qualities made it the cornerstone of the recovery pathway from Psa and this sweet, juicy fruit has become the engine driving the industry's future growth.

There are 4,800 hectares of SunGold planted in New Zealand and Zespri will release a further 400 hectares of SunGold in 2016 and potentially another 400 hectares a year for 2017, 2018 and 2019. This decision has been made in response to overwhelming demand from customers and consumers around the world.

Zespri Group Ltd production profile (TEs) 2000 - 2015



Source: Zespri International Annual Reports & Annual Reviews

Apple statistics

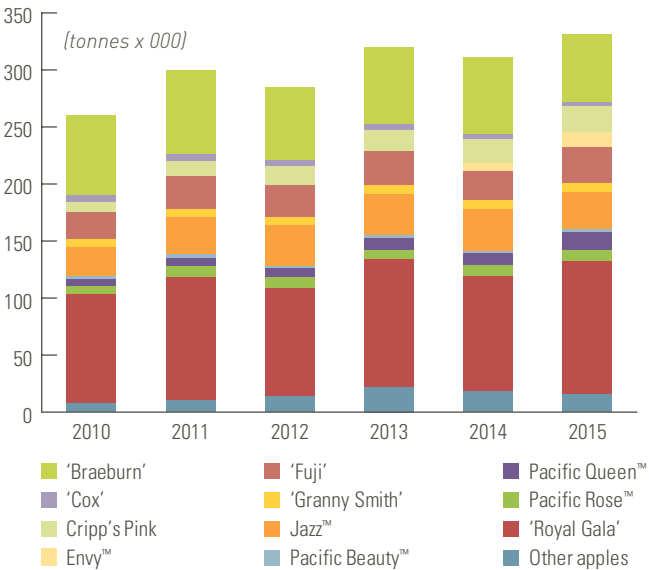
Year ending 31 Dec.	2010	2011	2012	2013	2014	2015
Crop volumes ('000 tonnes)						
National export production	260	300	285	320	311	331
Growing method: IFP	94%	94%	96%	95%	94%	94%
Certified organic	6%	6%	4%	5%	6%	6%
General statistics						
Export FOB \$/TCE	\$22.93	\$21.79	\$23.04	\$27.69	\$29.64	\$32.83
Area planted (ha)	8,630	8,470	8,324	8,372	8,429	8,566
Export orchards (no.)	985	976	953	953	921	919
Export Packhouses (no.)	62	70	65	61	56	56
No. of exporters	95	90	88	84	76	79

IFP: Integrated Fruit Production sustainability; TCE: tray equivalents 18 kg sale weight. Source: Pipfruit New Zealand

- New Zealand apples exported in 2015 were valued at \$561m fob (2014: \$536m), and went to 65 countries, nine of which imported an average of \$45m each, with 43% (\$241m ) going to Asian countries.
- Pipfruit New Zealand Inc. report that New Zealand growers are responding to market demands, replacing 'Braeburn' with other New Zealand-developed cultivars such as Envy™, Rockit®, Smitten®, Sweetango™, and Koru®, and also 'Ambrosia', 'Honeycrisp', and 'Kanzi'®.
- In the past decade the two largest volume apple varieties 'Braeburn' and 'Royal Gala' have reduced from a combined 55% of planted area in 2006 to 42% in 2015. 'Braeburn', a New Zealand-origin variety freely grown in many countries, had a planted area in New Zealand of 2,464 ha in 2006 but reduced to 1,352 ha in 2015.
- In the past five years the average New Zealand apple orchard size has increased in planted area from 9ha to 10ha The average size of orchards larger than 30ha is 50ha and whilst this orchard size is only 4% of orchard numbers, they produce 21% of the output.

Apple export production by variety: 2010 – 2015

Source: Pipfruit New Zealand Inc.



New Zealand: Ranked No.1 by the World Apple Review



The World Apple Review is a comprehensive assessment of current production, trade, consumption, prices, marketing, processing and competition. Produced annually, it provides an International Competitiveness Ranking of the world's 33 main apple producing-countries.

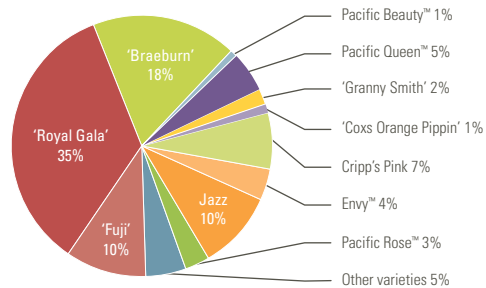
Of those 33 countries, only New Zealand, Italy and Austria were in the top third in all three subcategories, signalling strong all-round performances.

"Among all the major apple exporting countries, New Zealand has been consistently the largest risk taker in attempting to develop and market newer varieties that can win a premium from retailers and consumers, and can be rolled out around the world under a controlled marketing system." 2015 World Apple Review

- Consolidation and economies of scale are also evident in postharvest facilities, with volume through larger packhouses handling more than 500,000 TCEs (tray equivalents) increasing from 5.6m TCEs in 2010 to 10.9m in 2015. In 2015 New Zealand pipfruit had 56 export packhouse facilities compared with 130 packhouses in the year 2000.

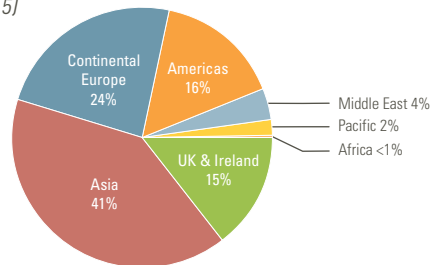
Apple exports by variety

(Weight basis, 2015)



Apple export destinations by region

(Weight basis, 2015)



Sources for above charts: Pipfruit New Zealand Inc.



Other fresh fruit

	Growers <sup>a</sup> (no.)	Planted area <sup>a</sup> (ha)	Crop volume <sup>a</sup> (tonnes)	Sales value (\$m)	
				Domestic <sup>b</sup> 2014/15	Export <sup>c</sup> (fob) 2015
Avocados	1,109	3,511	39,103	30.5	115.5
Berryfruit	240	2,990	22,786	43.9	31.0
- Blackcurrants	32	1,636	8,915	1.0	
- Boysenberries	21	214	3,300	4.5	
- Raspberries	50	150	945	3.0	
- Blueberries	75	650	2,626	13.5	23.4
- Strawberries	110	220	6,500	21.3	7.6
- Other berryfruits		120	500	0.6	
Citrus	439	999	35,927	59.4	11.5
- Grapefruit	18	8	300	0.3	
- Lemons	59	178	6,931	9.8	7.3
- Limes	25	12	300	1.0	
- Mandarins	241	361	12,225	28.9	3.0
- Oranges	190	406	15,371	18.6	1.1
- Tangelos	31	34	800	0.8	0.1
Feijoa	220	238	1,000	3.2	0.4
Grapes - table		43			0.2
Hops	18	390	739		
Kiwiberries	27	40	184	0.3	3.7
Nashi	25	30	918	2.0	0.1
Nuts		1,344			3.8
- Cashews					
- Chestnuts	100	142	350		
- Macadamias		195			
- Pistachios					0.2
- Hazelnuts		433			
- Walnuts		574			
- Other nuts					3.6
Olives	300	2,172	4,000		
Passionfruit	37	20	135	1.0	0.8
Pears		394	4,545		8.8
Persimmon	50	154	2,250	4.0*	7.4
Summerfruit	349	1,829	15,455	63.8	58.3
- Apricots	54	332	2,369	7.0	5.3
- Cherries	88	645	4,465	17.9	52.2
- Nectarines	56	328	3,156	14.1	0.1
- Peaches	73	307	3,081	15.2	0.5
- Plums	78	217	2,384	9.6	0.2
Tamarillos	40	100	450	2.4	0.1
Other fruit		250			0.8
Total fresh fruit (excl. Kiwifruit, Grape Wine, Apples)				242.4	

Sources: <sup>a</sup>Sector estimates, <sup>b</sup>Sector estimates of first point of sale values, <sup>c</sup>Statistics New Zealand Overseas Trade Statistics. Blank entries indicate either that the information is not available or items are valued at less than \$100,000.

- Fresh fruit exports of 756,500 tonnes in 2015 were 9% more than the 693,850 tonnes exported in 2014, with the value increasing by \$326 million to almost \$2 billion (\$1,982m).
- Kiwifruit was the highest value fresh fruit exported and 59% (\$1.18 billion) of the total value, with apples a further 28% (\$562m). Other major volume fresh fruit exports were avocados (\$115m), cherries (\$52m) and blueberries (\$23m).
- 17 other pipfruit, summerfruit, berryfruit and subtropicals had a combined value of \$48m.

Processed fruit

	Sales value (\$m)	
	Domestic <sup>a</sup> 2014/15	Export <sup>b</sup> (fob) 2015
Apple juice	80.0 <sup>c</sup>	20.9
Avocado oil	2.7	3.2
Blackcurrant concentrate		7.9
Other fruit juices	92.1	14.0
Other fermented beverages		15.4
Dried fruits		5.0
Frozen fruits		20.9
- Blackcurrants		5.0
- Blueberries	3.2	5.4
- Boysenberries	2.7	2.6
- Kiwifruit		3.7
- Raspberries		0.2
- Other		4.0
Fruit preparations		23.2
- Apples		3.2
- Blackcurrants		0.1
- Kiwifruit		2.6
- Fruits mixture preps		13.0
- Pears		0.1
- Other		4.2
Hops	3.8	12.8
Jams, jellies and purees		29.9
Nuts		3.1
Olive oil	12.0	0.6
Total processed fruit		156.9

Fruits used for processing is produced on the orchard areas described in the fresh fruit table. <sup>a</sup>Sector estimates of first point of sale values, <sup>b</sup>Statistics New Zealand, Overseas Trade Statistics <sup>c</sup>Author's estimate. Blank entries indicate either that the information is not available or items are valued at less than \$100,000.

- Frozen fruit exports (82% berries) were a record \$20.9m in 2015 (2014:\$14.7m) and significantly above the average value of \$12.8m for frozen fruit exported in the previous five years. Exports of frozen blueberries increased in value by 54% and frozen blackcurrants by 118% above 2014 export values.

A decade of development



For more than a decade, New Zealand's Hop Breeding Programme has focused on developing new cultivars with the unique flavour characteristics desired by the specialty and craft brewing sector. Commercial production of selected aroma cultivars has been a major factor in the most recent growth of the New Zealand hop industry. This is reflected in the demands by international brewers for these high quality aroma hops, with their reliable yields of alpha acid. Hops currently grown in New Zealand include 15 unique New Zealand varieties and eight specially selected Northern varieties.

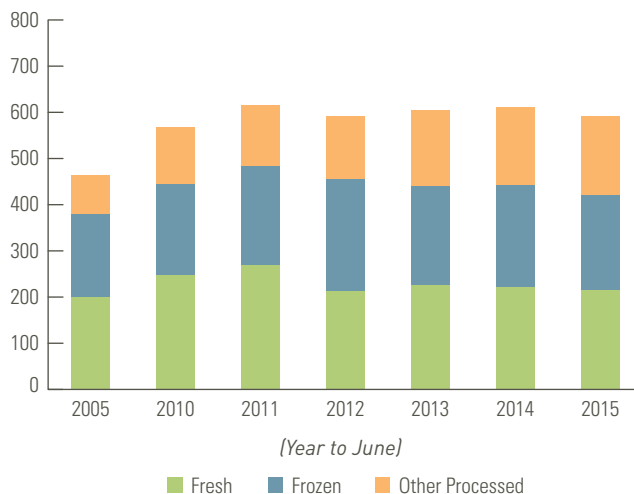
### Fresh and processed vegetables

Sales value (\$ million, fob)

	Growers <sup>c</sup> (no.)	Planted <sup>c</sup> area (ha)	Crop volume <sup>c</sup> (tonnes)	Domestic <sup>c</sup> 2015	Exports 2015 <sup>a</sup>	
					Fresh	Processed <sup>b</sup>
Asparagus	50	800 <sup>c</sup>	2,000	8.0	2.4	
Beans	25	1,500 <sup>c</sup>	21,000	24.0		44.7
- fresh	5	300	3,000	6.0		
- processed	30	1,200	18,000	18.0		
Beetroot	47	130	16,000	7.0		
- fresh	42	130	8,000	4.5		
- processed	5	270	16,000	2.5		
Brassicas	125	2,800 <sup>c</sup>	105,000	64.0	2.3	
- Broccoli	75	1,500 <sup>c</sup>	19,000	31.0		
- Cabbage	75	800 <sup>c</sup>	56,000	16.5		
- Cauliflower	25	500 <sup>c</sup>	30,000	16.5		
Capsicums	20	65 <sup>c</sup>	15,000	35.0	27.5	
Carrots	45	2,600 <sup>c</sup>	166,000	48.0		
- fresh	20		88,000	30.0	7.8	
- processed	25		78,000	18.0		2.1
Cucumbers	50	50 <sup>c</sup>	1,770	20.0		
Eggplant/Aubergine				8.5		
Garlic	8	200 <sup>c</sup>	900	7.0	0.6	
Kumara	35	1,300 <sup>c</sup>	18,000	33.0		
Lettuce	100	1,350		42.0	1.4	
- outdoor	40	1,300 <sup>c</sup>				
- greenhouse	60	50 <sup>c</sup>				
Melons	20	273 <sup>f</sup>	4800	28.0	0.9	
Mushrooms	7	25 <sup>c</sup>	8,500	42.0	1.7	
Onions	104	4,976 <sup>c</sup>	174,183	25.0	81.4	
Peas	442					
- fresh	42					
- processed	400	8,250 <sup>c</sup>	66,500	27.0		84.8
Potatoes	169	10,329 <sup>c</sup>	525,000	90.0	20.3	92.5
Pumpkin	40	1,048 <sup>f</sup>	38,000	13.0		
Shallots	4	30 <sup>c</sup>	1,200		0.4	
Silverbeet/Spinach	15	200 <sup>c</sup>	3,500	12.0		
Squash	12	5,811 <sup>c</sup>	76,743	2.9	58.7	
Sweetcorn	150	4,664 <sup>f</sup>	91,000	20.0	0.1	38.5
- fresh			22,000	9.0		
- processed			69,000	14.0		
Tomatoes	170	765	108,200			
- outdoor, fresh	10	45 <sup>d</sup>	3,800	9.0		
- outdoor, processed	20	600 <sup>c</sup>	62,000			
- greenhouse	140	120 <sup>c</sup>	42,400	91.2	8.1	3.1
Truffles <sup>d</sup>	75	70	0.2	0.5		
Mixed vegetables	Made from combinations of the above crops.					34.2
Dried vegetables	Excluding peas, beans, corn.					6.8
Vegetable preps						26.1
Vegetable juices						30.3
- carrot juice <sup>d</sup>				0.5		29.0
- other veg. juices						1.3
Other Vegetables <sup>a</sup>	2,457				2.4	12.0
<b>Total</b>	<b>1,700<sup>c</sup></b>	<b>50,163<sup>f</sup></b>			<b>216.0</b>	<b>375.1</b>

Crops areas are predominantly sector estimates. <sup>a</sup>Includes taro, celery, parsnips, spring onions, Asian vegetables (excl. Chinese cabbage), yams, witloof, leeks, vegetable shoots, shallots, swedes and some others. <sup>b</sup>Processing includes freezing, canning, juicing and artificial drying. <sup>c</sup>Sector estimates. Blank entries indicate that the information is not available. <sup>d</sup>Authors' estimates. <sup>e</sup>Growers produce multiple crops. <sup>f</sup>StatsNZ Production Census crop areas as at 30 June 2012. <sup>g</sup>Statistics New Zealand from export entries.

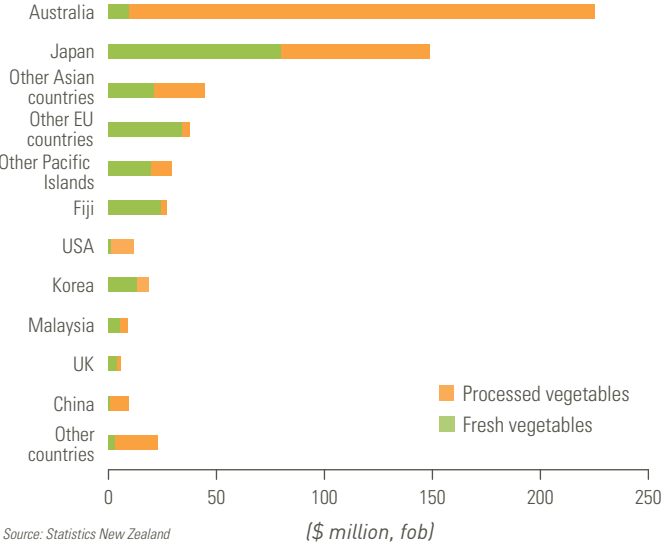
### Vegetable exports 2005 – 2015 (\$ million, fob)



Source: Statistics New Zealand

- Total volume of vegetable exports from New Zealand in 2015 was 507,200 tonnes, 3.6% less than 2014 (526,100t); export value in 2015 was \$591m, 3.1% less than the \$609.9m in 2014.
- 2015 vegetable export crops with combined values greater than \$20m for fresh/frozen/dried and preparations were: potatoes \$112.8m (2014: \$122.3m), peas \$84.8m (\$79.8m), onions \$81.4m (2014 \$97.1m), squash \$58.7m (\$45.9m), beans \$44.7m (\$44.6m), sweetcorn \$38.5m (\$38.4m), carrots \$30.6m (\$32.3m), and capsicums \$27.5m (\$32.0m).
- Fresh and processed vegetables were exported to 76 countries in 2015, with 64.0% to two countries:
  - 38.6% to Australia: \$225.4m (fresh veg. \$9.5m, frozen \$133.4m [potatoes \$57.6m, mixed veg. \$25.2m, peas \$28.1m], vegetable preparations \$69.0m,
  - 25.4% to Japan: \$148.6m (fresh \$79.9m [squash \$44.6m, capsicums \$19.2m]), frozen \$28.6m, vegetable juice \$27.9m.
- New Zealand imported 103,500 tonnes of vegetables in 2015 with a CIF value of \$212.3m (2014: 96,100t/\$196.9m CIF).
- Largest volume vegetable imports were 23,500 tonnes of preserved tomatoes (Italy 10,500t, the USA 9,500t), 15,700t of frozen potatoes (Australia 6,800t, Continental Europe 5,400t [The Netherlands and Belgium]), 8,600t dried beans (Canada 5,100t, the USA 2,900t), 6,200t fresh melons (Australia 5,200t), 4,200t preparations of beans (Italy 3,600t), 2,600t of potato starch (The Netherlands 1,100t, Germany 1,000t) and 2,200t of garlic (China 2,100t).
- Measured by value, of the 76 countries from which New Zealand imported vegetable produce in 2015, those that were the origin for more than \$5m CIF value were: Australia \$50.3m, the USA \$35.0m, China \$29.2m, Italy \$20.7m, Canada \$9.8m, Belgium \$7.7m, the Netherlands \$7.7m, and India \$7.0m.

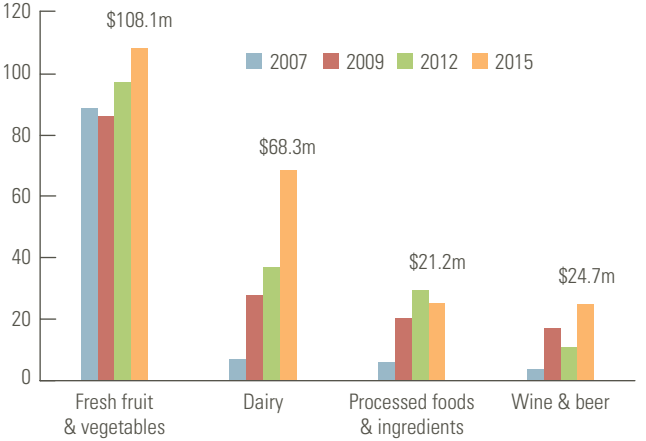
Destinations of New Zealand vegetable exports 2015 (\$ million, fob)



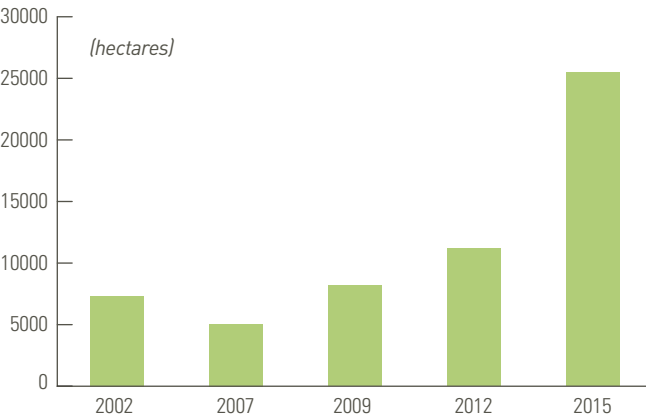
Organic production

- New Zealand land area under organic certification in horticulture increased by 128% in the three years from 2012 (11,188 ha) to 2015 (25,476 ha), reflecting significant growth principally in certified organic pipfruit and vineyard production.
- In 2015 there were 610 organic operations in horticulture, down 5% from 2012.
- Exports of organically certified fresh fruit and vegetables in 2015 were calculated to be \$108m and 45% of total organic sector produce exports.
- In 2015, the New Zealand market for organic food, including that both exported and consumed domestically, was estimated at between \$457m and \$467m. This compares with an estimated \$350m in 2012 – a 30% increase.

New Zealand exports of organically certified produce (\$ million)



New Zealand organic land area under certification, horticulture and viticulture



Controlling diamondback moth



The diamondback moth (DBM) is the most important insect pest of brassica crops worldwide. At its worst, it can lead to total loss of a crop. There is a global effort to develop new ways of managing the pest, as the moth is developing resistance to many of the insecticides currently available.

Since 2000, an integrated pest management (IPM) programme for controlling the diamondback moth in New Zealand has been available. The IPM programme, now adopted on more than 70% of the New Zealand vegetable brassica crop, has stopped the development of insecticide resistance and significantly decreased the need for pesticides.



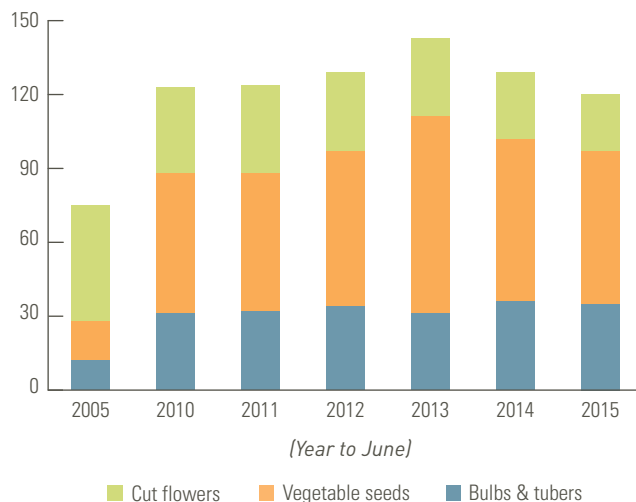
### Exports of flowers, plants, seeds and other products (\$ million, fob)

Selected HS Items	1990	2000	2010	2014	2015
Cut flowers					
- Chrysanthemums			0.2	0.2	0.1
- Hydrangeas			2.7	2.7	2.8
- Lilium		1.9	0.2	0.2	0.1
- Nerines		0.6	0.2	0.1	0.1
- Orchids	8.2	22.4	20.8	15.3	12.9
- Paeonies		0.5	1.7	1.8	2.0
- Pittosporum			1.2	1.3	0.5
- Proteaceae	0.5	1.4	0.9	0.5	0.3
- Sandersonia	0.2	3.1	0.2	0.3	0.1
- Zantedeschia (Calla lily)	1.9	7.7	3.7	1.6	0.9
- Other foliage	0.7	0.6	0.6	0.6	0.3
- Other cut flowers	7.8	8.5	2.7	2.0	2.8
Plants					
- Other live plants	2.5	5.6	6.6	6.2	5.2
Seeds					
- Flower seeds	<0.1	2.1	0.3	0.7	0.4
- Fruit seeds			1.9	1.5	2.4
- Cabbage seeds			5.0	4.6	4.7
- Carrot seeds			7.6	14.9	12.2
- Radish seeds			21.4	24.3	23.9
- Silverbeet seeds				3.7	4.0
- Other veg. seeds	2.1	15.9	23.4	18.7	17.4
- Tree seeds		1.6	1.5	0.9	1.0
Bulbs, tubers, corms					
- Lilium			16.8	22.6	24.2
- Sandersonias			0.7	0.5	0.2
- Tulips			9.6	11.6	9.7
- Zantedeschia (Calla lily)		1.5	3.5	0.1	0.1
- Others	2.0	10.1	0.4	1.1	0.5
Sphagnum moss	11.0	15.3	6.1	4.3	4.3*
<b>Total</b>	<b>36.9</b>	<b>98.8</b>	<b>139.9</b>	<b>142.3</b>	<b>133.1</b>

The term "bulbs" is used to include bulbs, corms, tubers, tuberous roots, crowns & rhizomes. \*Authors estimate.  
Source: Statistics New Zealand.

- The total value of exports of cut flowers, seeds, plants, bulbs, corms and foliage has not changed markedly in the past decade (2015: \$133.1m; 2005: \$119.6m), but the value of cut flowers and foliage has approximately halved (2015: 22.9m; 2005: \$38.5m), the value of seeds has doubled (2015: \$66.0m; 2005: \$31.5m) and flower bulbs has increased 38% (2015: 34.8m; 2005: \$25.2m).

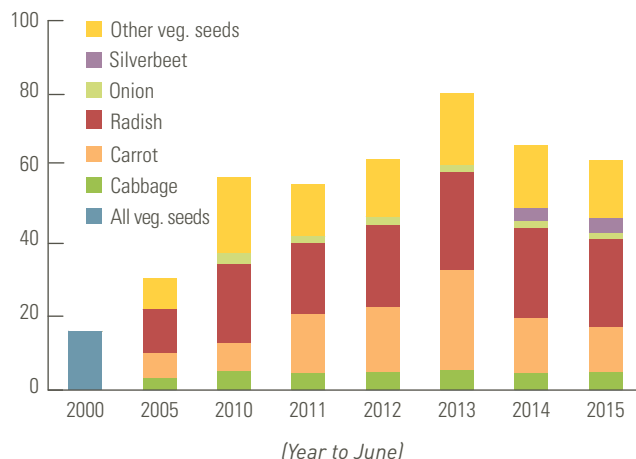
### Exports of flowers, seeds and bulbs (\$ million, fob)



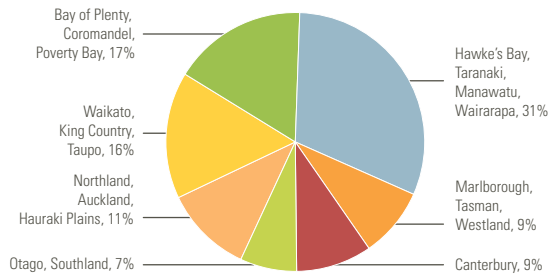
Source: Statistics New Zealand

- Decreases in cut flower exports have been in orchids (2015: \$12.9m; 2005: \$18.4m) and *Zantedeschia* (Calla lily) (2015: \$0.9m; 2005: \$5.5m). Largest export destinations for cut flowers in 2015 were: Japan \$8.4m, the USA \$4.9m, Hong Kong \$2.0m.
- 97% of flower bulb exports were in two varieties: *Lilium* \$24.2m (Japan \$8.4m, China \$4.1m, The Netherlands \$3.4m, Viet Nam \$2.6m, Taiwan \$2.1m); tulips \$9.7m (the USA \$4.6m, The Netherlands \$3.0m).
- Vegetable seed is now exported to 46 countries having doubled by value in the past decade: 2015 \$62.2m, 2005: \$31.5m. Largest value export destinations were: The Netherlands \$25.4m, Korea \$6.4m, Japan \$5.6m, Germany \$4.1m, Viet Nam \$2.7m, the USA \$2.6m, France \$2.2m.

### Vegetable seed exports (\$ million, fob)



New Zealand honey production 2015 (19,712 tonnes)

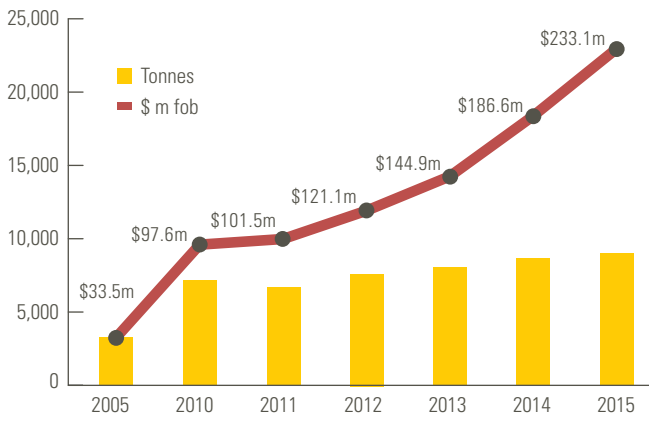


Source:ASUREQuality Ltd

A vital contributor to horticulture

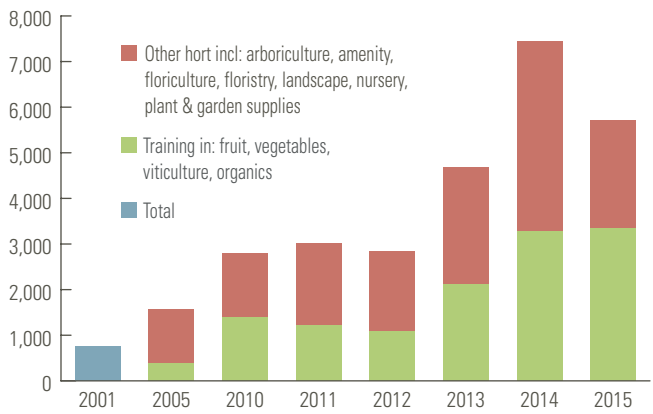
- Bees are crucial to New Zealand's primary sector, pollinating approximately one-third of our food sources and playing a significant role in determining crop yields.
- Honey production in 2015 was a record 19,712 tonnes, being 5,125 tonnes (35%) greater than the six-year average (2010-2015) of 14,588 tonnes.
- The value of New Zealand's honey exports increased in value to \$233.1m in 2015 (2014: \$186.6m) with the major export markets exceeding \$20m fob value being: UK \$45.2m (2014 \$39.3m), Australia \$33.1m (\$26.4m), Hong Kong \$28.0m (\$26.4m), China \$21.5m (\$15.4m). Natural honey was also exported to 46 other markets. 46% (9,046 tonnes) of NZ natural honey production was exported, of which 86% by weight was in retail packs, up from 56% in 2010.
- As at June 2015 New Zealand's 5,551 registered beekeepers had 575,872 hives, an increase of 68,625 (12%) on 2014. In 2005, New Zealand had 295,000 hives and produced 8,888 tonnes. Export of natural honey in 2005 was valued at \$33.5m fob.

New Zealand natural honey exports 2005 - 2015



Source: Statistics New Zealand

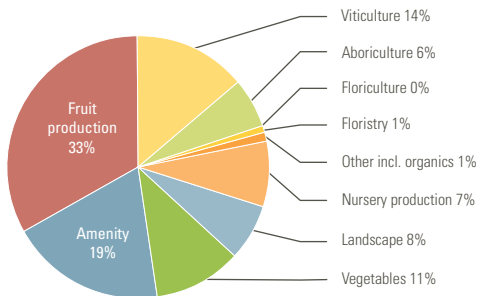
People in horticultural training, per year 2001 - 2015



Source: Primary ITO

- In 2015 the total number of trainees in the different fields of horticulture was 5,716 compared with 7,449 in 2014 and 4,684 in 2013.
- Trainee numbers in the produce production subjects of fruit, vegetables and viticulture (wine grape) production, plus the small number in organics (12 in 2015) totalled 3,340 in 2015 which was a record; 2014: 3,269; 2013: 2,105. The average number of trainees in produce production subjects for the six years from 2010 to 2015 was 2,067 per year.

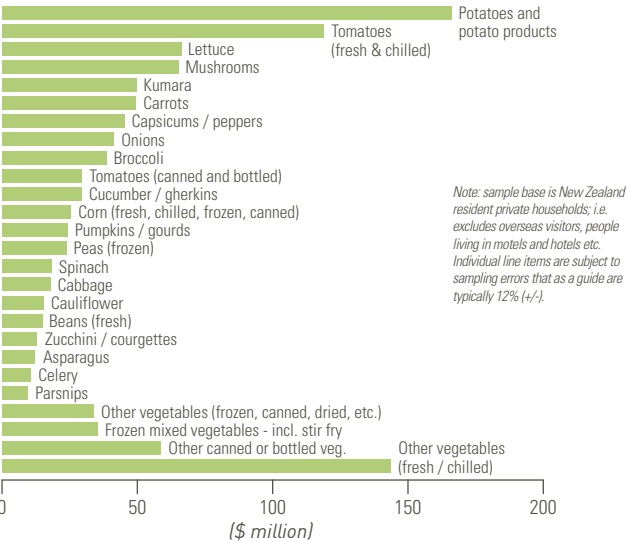
Trainees by category (year to December 2015)



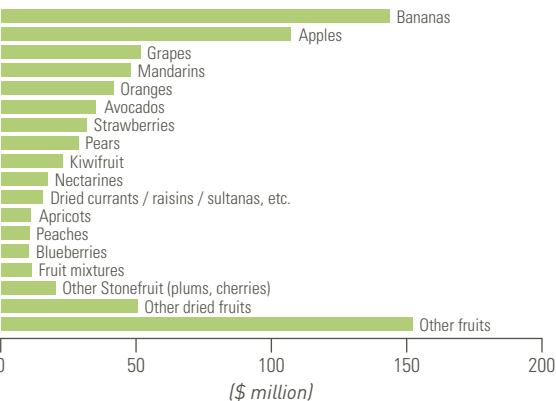
Source: Primary ITO



New Zealand consumer spending on vegetables (\$ million)  
(local & imported produce, fresh / chilled / dried / canned / bottled / frozen)



New Zealand consumer spending on fruit (\$ million)  
Calculated aggregate annual expenditure by all private New Zealand households (local & imported produce, fresh / chilled / dried / canned / bottled / frozen)



Source: Statistics New Zealand: triennial Household Economic Survey (HES), 2013

In 2013, New Zealand households spent an estimated \$2.4 billion on fruit, vegetables and wine, with:

- \$ 670 million on fresh and chilled fruit
- \$ 137 million on processed fruit
- \$ 920 million on fresh and chilled vegetables
- \$ 235 million on processed vegetables
- \$ 690 million on wine

Source: Statistics New Zealand: triennial Household Economic Survey (HES), 2013. N.B. survey is of households only and excludes overseas visitors, people living in hotels and motels, etc., and excludes restaurants and takeaway meals.

Investment in the horticultural industries, 2015

	Crop area (ha)	On-farm (\$ million)	Off-farm (\$ million)	Total (\$ million)
Apples, pears & nashi	9,530	1,048	721	
Wine grapes	36,360	6,508	16,271	
Kiwifruit	11,300	4,068	2,797	
Summerfruit	2,130	170	117	
Avocados	3,860	367	202	
Citrus	1,550	124	68	
Berryfruit	3,055	244	168	
Nuts	1,340	107	29	
Olives	2,175	174	120	
Other subtropical fruit	700	56	23	
Hops	395	32	78	
Other fruit	850	68	28	
Total fruit	73,245	\$12,967	\$20,622	\$33,589
Potatoes	10,330	620	298	
Peas & Beans	8,300	523	252	
Onions	5,540	332	160	
Squash	5,810	395	190	
Sweetcorn	4,665	280	135	
Broccoli, cabbages & cauliflowers	3,640	218	105	
Carrots	2,600	156	75	
Asparagus	670	40	19	
Lettuce	1,350	81	45	
Other vegetables	7,000	420	173	
Total vegetables (outdoor)	49,905	\$3,066	\$1,452	\$4,518
Floriculture - outdoor	590	35	18	
Protected - high tech	85	340	102	
- greenhouse tomatoes	120	360	108	
- low/medium tech	320	480	144	
- floriculture (undercover)	340	510	51	
Total horticultural	124,605	\$17,758	\$22,497	\$40,255

The above table is an estimate of the investment that has been made in the productive area of New Zealand horticulture and related postharvest facilities.

Crop area figures are predominantly industry estimates of planted areas per crop for the year to June 2015 (pgs 8 to 16 incl.) with author adjustments for informal production and differ from StatsNZ Agricultural Production Census hectares as at June 2012 (pgs 26 & 27). Total hectares in horticulture are estimated to have increased by 2% on the census 2012 total.

Land values are based on independent land valuation advice and industry and authors' estimates.

No adjustment has been made for non productive farm/orchard/vineyard areas that are typically 15% of total area and up to 80% for crops such as floriculture under cover.

Off-farm investment levels have been estimated from industry advice and guidance including integrated producers whose supply chain includes both production and post production.

- Total investment in New Zealand's horticultural industry is estimated to be in excess of \$40 billion inclusive of off-farm postharvest facilities for cleaning, sorting, packaging and processing produce from an estimated 124,600 hectares of cultivated horticultural crops in fruit, vegetables and flowers.
- New Zealand's largest investments in horticulture by crop type are in viticulture, kiwifruit, pipfruit and potatoes. Collectively these four are estimated to be 54% of horticulture land in production and 80% of the total on-farm and off-farm investment in New Zealand horticulture.

As at 30 June 2012

Distribution of fruit by Regional Councils (area planted, ha)

Regional Council	Apples	Wine grapes	Kiwifruit	Summerfruit	Avocados	Citrus	Berryfruit	Nuts	Olives	Other subtropical	Other fruits	Total fruits
Year ended 30 June 2012												
Northland	17	82	574	17+	1,547	295+	22+	62+	201	117+	29	2,963+
Auckland	96	300	363	50+	148	103+	137	112+	250	91	29	1,679+
Waikato	141	26	726	37	176	20+	342+	44+	55	79+	15	1,661+
Bay of Plenty	5	C	9,912	6+	2,081	106	45+	72	42	112+	34	12,415+
Gisborne	110	1,685	326	C	60	1151	C	8+	C	115+	14	3,469+
Hawke's Bay	5,115	4,936	222	854	28	13+	23+	14+	321	222+	25	11,773+
Taranaki	C	C	0	0	62	C	C	C	C	17+	C	79+
Manawatu-Wanganui	34	8	C	21+	22	5+	30+	53+	43	50+	C	266+
Wellington	C	895	C	29+	16	4+	8+	33	216	49+	30	1,280+
Tasman-Nelson	2,496+	821+	497+	22+	7	1+	688	59+	129	284+	47	5,051+
Marlborough	18	22,627	C	68+	C	0	C	31+	134	15+	C	22,893+
West Coast	C	0	0	0	0	0	C	6	0	5+	C	11+
Canterbury	226	1,550	C	102	C	C	1,008	639	240	18+	23	3,806+
Otago	459	1,577	0	1,046	C	0	27+	116+	22	16+	13	3,276+
Southland	C	C	0	C	0	C	5+	33+	0	C	C	38+
Other/non allocated	128	55	137	24	2	159	263	62	4	75	137	1,046+
Total New Zealand	8,845	34,562	12,757	2,276	4,149	1,857	2,598	1,344	1,657	1265	396	71,706
2007	9,247	29,616	13,250	2,294	4,004	1,834	2,497	1,484	2,173	1,500	398	68,297
%	-4%	17%	-4%	-1%	4%	1%	4%	-9%	-24%	-16%	-1%	5%

Major changes: total fruit production area has increased by 13,171 ha (23%) since 2002 census; wine grapes doubled since 2002 census of 17,359 ha; kiwifruit reduced 502 ha since 2007, but was 793 ha above 2002 census of 11,964 ha; olives decreased 24% (-516 ha) since 2007 census and is now 36% below 2002 census of 2,590 ha. Total outdoor vegetables area is 3,014 ha (-6%) less than the 2002 census but almost unchanged since 2007, since the 2007 census, sweetcorn has is -25% (-1,564 ha) but onions increased 24% (+1,124 ha) and carrots by +55% (+727 ha); peas & beans (predominantly peas) increased 5% since 2007, but the census area is 14% (1,250 ha) less than the 2002 figure of 9,109 ha. C- Some data have been suppressed for reasons of respondent confidentiality. + Incomplete data set due to some crop data being suppressed. Source: Statistics New Zealand Agricultural Production Census - as at June 2002, 2007 & 2012. Note: variations between the data reported in this section with those reported for the individual horticultural sectors can in part be attributed to differences in definitions, sample size and time of sampling.

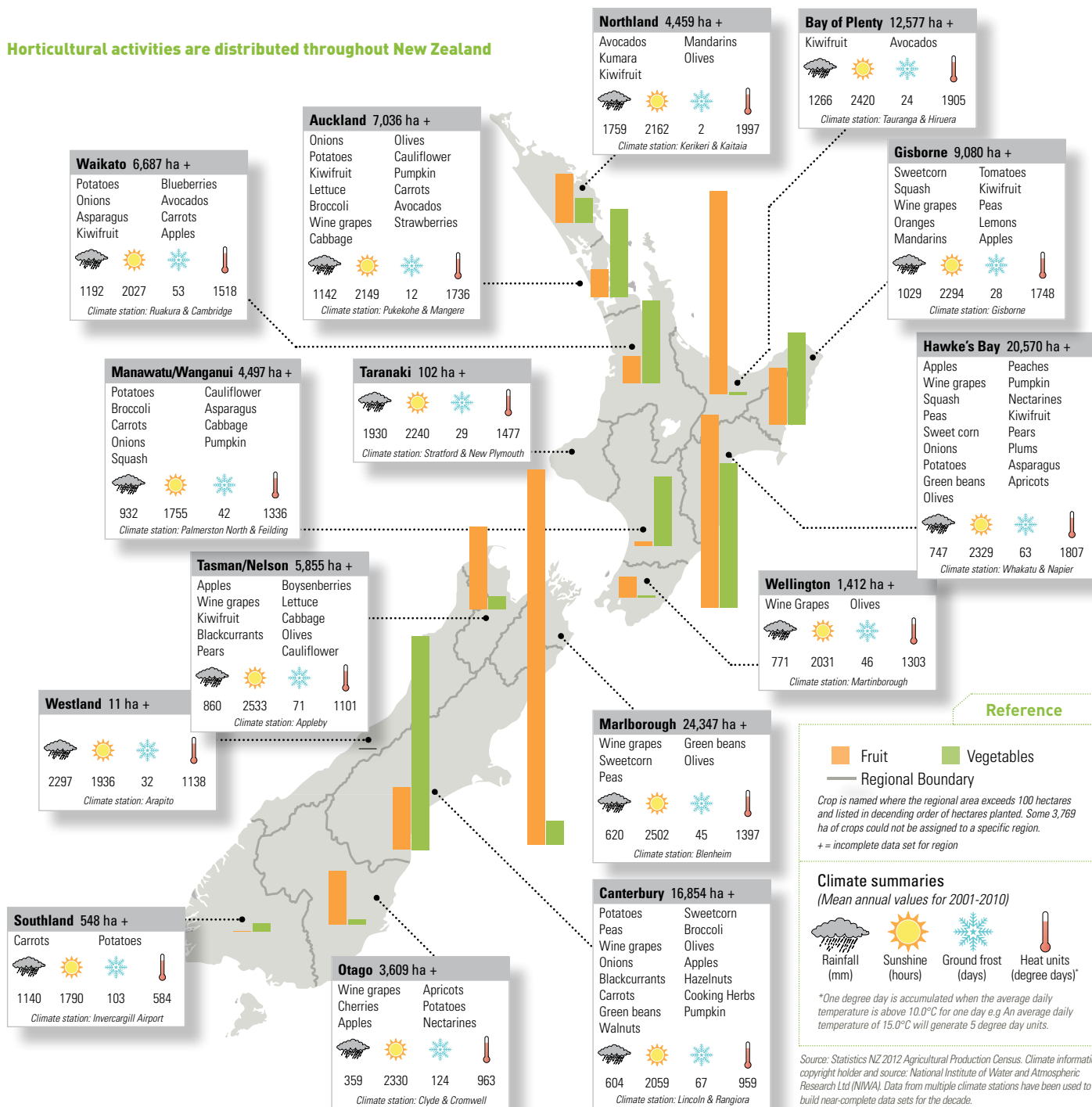
Distribution of vegetables by Regional Councils (area planted ha)

Regional Council	Asparagus	Broccoli	Peas & Caulis	Carrots	Beans	Lettuce	Onions	Potatoes	Squash	Sweet corn	Other veg	Total veg
Year ended 30 June 2012												
Northland	C	28	6	2+	C	22	C	84	1,354	1,496+		
Auckland	C	940	194	79	469	1,621	1,444	C	38	572	5,357	
Waikato	459	75+	166	2+	73	1,837	2,074	C	42	298+	5,026+	
Bay of Plenty	C	53+	0	C	0	C	C	C	15	94+	162+	
Gisborne	0	C	0	283+	C	C	2,406	2,493	429+	5,611+		
Hawke's Bay	110	85	C	2,506	10	662	589	3,248	1,050	537+	8,797+	
Taranaki	C	C	C	C	C	23	C	C	C	23+	C	
Manawatu-Wang.	173	859	429	43	339	392	1,260	241	23	472+	4,231+	
Wellington	0	39+	C	1+	41	C	19	C	C	32+	132+	
Tasman-Nelson	4	346+	C	C	132	55+	13+	14+	37+	203+	804+	
Marlborough	C	0	C	C	742	C	2	C	601	109+	1,454+	
West Coast	0	0	0	0	0	0	0	0	0	0	0	
Canterbury	29	323	823	4,155	23	1,035	5,754	C	255	651	13,048	
Otago	C	149	C	C	25	4	153	C	C	2	333	
Southland	0	C	300	0	C	210	0	0	C	510	C	
Other	45	1,238	129	333	138	167	28	942	63	560	2,723	
Total New Zealand	820	3,622	2,047	7,858	1,250	5,718	11,578	6,837	4,664	5,313	49,707	
2007	871	3,875	1,320	7,515	1,309	4,594	10,050	7,774	6,210	6,261	49,779	
%	-6%	-7%	55%	5%	-5%	24%	15%	-12%	-25%	-15%	0%	

See above notes (1 ha = 10,000 m<sup>2</sup>)

# Regional resources

## Horticultural activities are distributed throughout New Zealand



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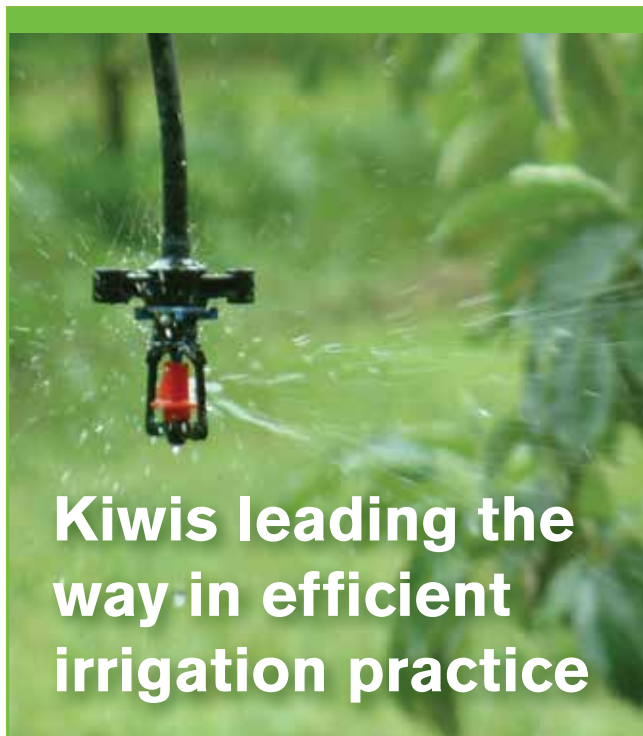


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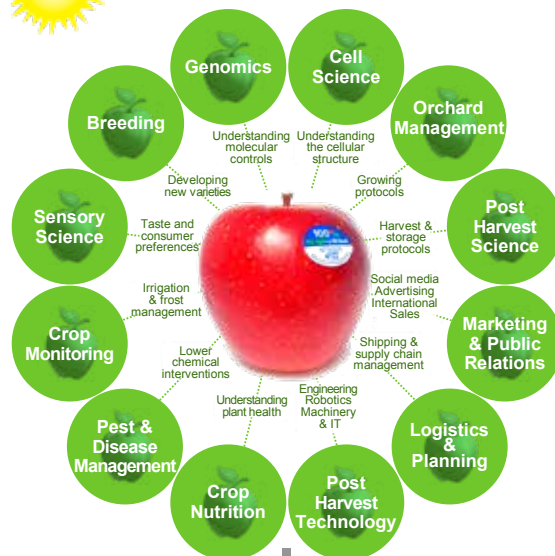
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# Horticulture Trust

*A helping hand for horticulture*



RESEARCH  
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EDUCATION  
& TRAINING



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## About the Trust

The New Zealand Horticulture Trust was established in 2008 with the objective of providing '*A helping hand for horticulture*'.

The Trust encourages Horticulture and Viticulture sector groups to apply for grants to assist them in the promotion of education, training & research in New Zealand.

The NZ Horticulture Trust has three principal sponsors, **Horticulture**, **TasmanCrop** and **HortFertplus**. These three principal sponsors have been providing quality products and services to commercial crop growers since the 1980's.

The New Zealand Horticulture Trust is proud to be supporting Horticulture and Viticulture in NZ.



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Ministry for Primary Industries  
Manatū Ahu Matua



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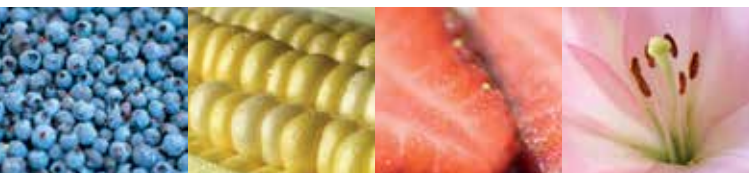


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