

*Fresh*Facts

NEW ZEALAND HORTICULTURE

2016



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Reporting basis: unless stated otherwise, all statistics are for the year ending 30 June 2016 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.

Fresh Facts, formerly called Horticulture Facts and Figures, has been published annually since 1999 by The New Zealand Institute for Plant & Food Research Ltd. Further copies are available from: Plant & Food Research, Corporate Communications, Private Bag 92169, Mt Albert, Auckland, Tel: 09 925 7000, plantandfood.co.nz

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ISSN 1177-2190

Cover image: Novel crop varieties, such as Purple Dawn kumara, that address consumer demands allow New Zealand horticultural products to command a premium in export markets.

New Zealand horticulture – reaching new highs

This year, the value of New Zealand horticultural products has exceeded NZ\$8 billion for the first time, keeping the sector on track to meet Horticulture New Zealand's target of \$10 billion by 2020. This new record includes more than \$5 billion of exports, an increase of 52% on 2010 figures. Horticulture contributed 10.3% of New Zealand's merchandise exports for the year, another record high.

Efficient production systems, new cultivars, and strong branding and marketing all contribute to the industry's success. Whilst exports of kiwifruit, wine and apples dominate, New Zealand's crops are diversifying. Onion, pea, frozen potato and avocado exports are now each worth more than \$80 million. In addition, export value of blueberries have doubled and cherry exports have tripled since 2010.

The continued success of New Zealand's horticultural export industry has been founded on a keen understanding of market needs and the delivery of high quality produce that commands a premium in discerning markets. Across the value chain, every part of our industry strives to ensure New Zealand's brand and quality reputation are maintained, introducing new products and technologies to maintain this premium position.

Plant & Food Research is proud to support the horticultural industry with research across the value chain, helping to capture new opportunities that add and sustain value for growers, producers, marketers and New Zealand.

Peter Landon-Lane
CEO, Plant & Food Research



Exports/imports

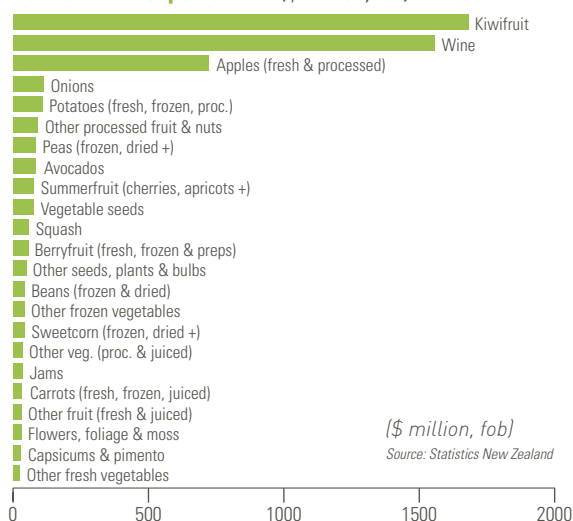
Horticultural exports, year ended June (\$ million, fob)

	1985 ^a	1995 ^b	2005 ^b	2010 ^b	2015 ^b	2016 ^b
Fresh fruit						
- Apples	108.2	343.6	387.0	324.6	561.8	691.8
- Kiwifruit	171.9	320.8	720.2	995.7	1,181.9	1,673.1
- Avocados	n/a	n/a	29.0	59.9	115.5	82.6
- Other fresh fruit	28.4	57.6	51.5	74.7	122.9	154.5
Total fresh fruit	308.5	722.0	1,187.7	1,454.9	1,982.1	2,602.0
Processed fruit						
- Wine	3.0	42.0	432.7	1,036.8	1,406.2	1,556.1
- Fruit juices	9.6	30.5	34.5	31.7	46.5	51.5
- Jams	n/a	n/a	18.1	48.4	29.9	34.7
- Other processed fruit	40.3	44.3	49.2	75.1	84.7	90.2
Total processed fruit	52.9	116.8	534.5	1,192.0	1,567.3	1,732.5
Fresh vegetables						
- Onions	17.7	92.6	61.6	113.4	81.5	112.5
- Squash	14.6	57.7	72.1	53.2	58.7	58.2
- Other fresh vegetables	11.6	49.8	66.3	81.1	75.8	88.3
Total fresh vegetables	43.9	200.1	200.0	247.7	216.0	259.0
Processed vegetables (frozen/dried/other processes)						
- Peas	22.0	34.3	36.9	72.9	84.8	84.3
- Potatoes		14.1	56.9	82.0	92.5	83.6
- Sweetcorn	9.5	30.6	43.4	38.0	38.5	41.8
- Mixed vegetables (frozen)	4.6	23.9	36.0	36.1	34.2	32.5
- Other vegetables (frozen)			16.4	16.4	21.2	21.8
- Other vegetables (dried)			25.5	8.4	7.8	9.5
- Vegetable juices			6.6	19.4	30.3	23.8
- Other processed vegetables	20.9	75.6	42.6	47.9	65.8	58.6
Total processed vegetables	57.0	178.5	264.3	321.1	375.1	355.9
Other horticultural exports						
Flowers & foliage	10.5	49.9	38.5	35.1	22.9	27.1
Vegetable seeds	n/a	n/a	30.2	57.4	62.2	74.2
Seeds, plants & bulbs etc.	2.1	17.4	42.1	41.3	43.7	48.8
Sphagnum moss	6.3	17.3	8.8	6.1	5.2	5.1*
Total other horticultural exports	18.9	84.6	119.6	139.9	134.0	155.2
Total exports in current \$	481.2	1,302.0	2,306.1	3,355.6	4,274.5	5,104.6
Horticultural exports						
as % of NZ merchandise exports	4.4	7.0	7.5	8.3	8.8	10.3

Source: ^aBollard (1996) ^bStatistics New Zealand *Estimate

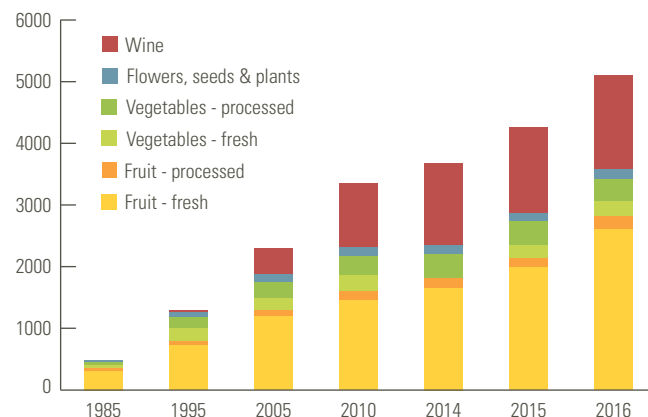
- For the first time New Zealand's total horticultural produce exports in 2016 exceeded \$5b fob value, being 19.4% and over \$800m above the 2015 export value, a remarkable increase recognising that New Zealand's horticultural produce exports were \$3b in 2008 and only exceeded \$4b fob value in 2015.
- NZ horticultural exports are increasingly Asia focused, being 2.4 times more valuable than any other region at \$1.932b in 2016 (2015:\$1.437b), compared with North America \$814m (\$649m), Australia \$804m (\$828m), Continental Europe \$741m (\$632m), UK/Ireland \$496m (\$467m).
- Fruit exports, including wine, increased \$785m (22%) to \$4.3 b; vegetable exports by \$17m (4%) to \$615m; and flowers and seeds by \$21m (15.7%) to \$155m.
- Exports of New Zealand wine increased in value by \$150m (11%) over 2015 values to exceed \$1.5b fob.

Horticultural exports 2016 (\$ million, fob)



- Fresh fruit exports 2016 increased to \$2.6b, an increase of \$620m (35%) on 2015, notably:
 - Kiwifruit at \$1.7b were up \$491m (42%)
 - Apples up \$130m (23%) to \$692m
 - Blueberry exports of \$36.5m were 50% above the \$23.2m average export value of the previous three years 2013 to 2015
 - Cherry fruit exports of \$68m increased by \$16.6m (30%) from 2015
 - Avocado exports at \$82.6m decreased by \$33m from 2015, reflecting the smaller export volume of 14,400t compared with 25,000t in 2015.

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

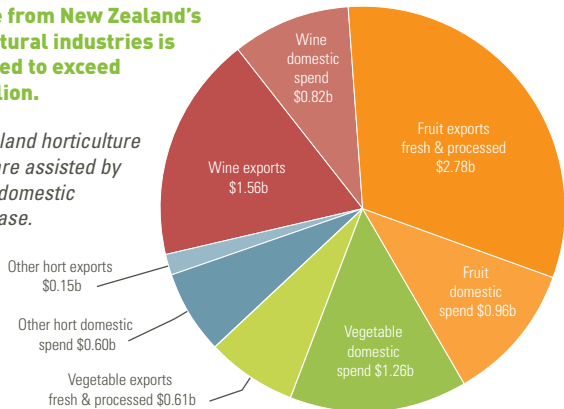


Exports/imports



Produce from New Zealand's horticultural industries is calculated to exceed \$8.7 billion.

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



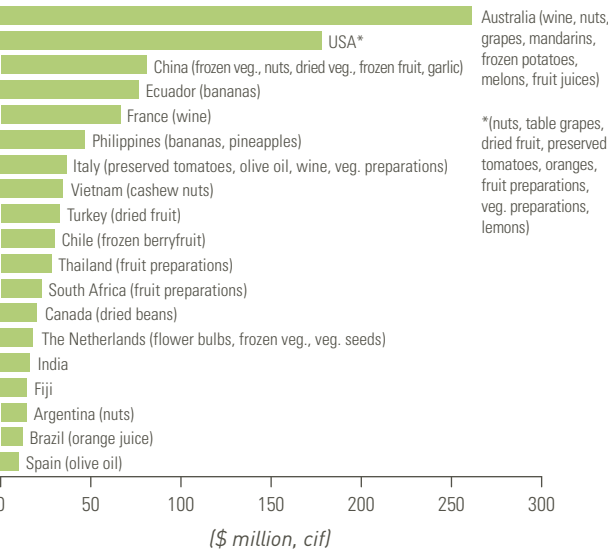
Source: Statistics New Zealand merchandise exports, with domestic market figures derived from the triennial Household Economic Survey (HES) 2016 and Statistics New Zealand estimate of mean number of private dwellings year to 30 June 2016.

Top 10 export destinations (\$ million, fob)

	2005	2015	2016	
Australia	335	828	804	Wine, processed veg, avocados, potatoes, honey*, kiwifruit, blueberries, beans, peas, jams, sweetcorn, fruit preparations, fermented beverages, apple juice, capsicums
USA	232	532	679	Wine, apples, kiwifruit, honey
Japan	472	483	594	Kiwifruit, squash, honey*, frozen veg, capsicums, veg-juice, wine, sweetcorn, onions
China	15	305	498	Kiwifruit, apples, honey*, wine, cherries, frozen veg.
UK	288	446	471	Wine, apples, honey*
EU (centralised distribution)	240	263	322	Kiwifruit, apples
Taiwan	76	178	273	Kiwifruit, apples, cherries
Canada	24	117	135	Wine, kiwifruit, apples
Spain	82	91	112	Kiwifruit
Netherlands	116	107	108	Wine, apples, seeds-carrot, onions

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

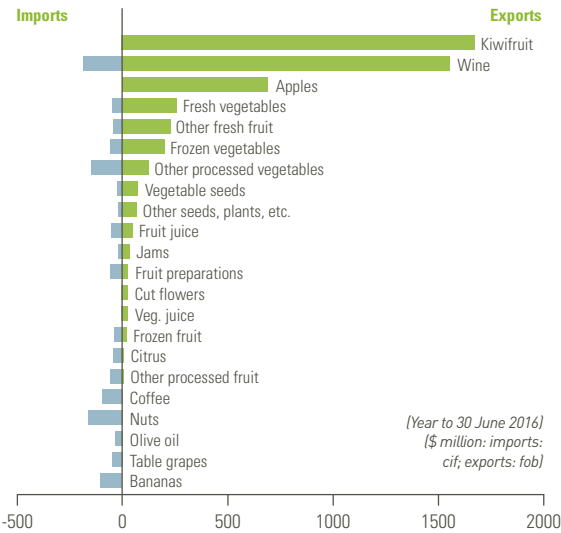
The origin of fruit and vegetable imports, 2016



The countries listed in this diagram send us more than \$10m (cif) of fruit and vegetables.
Many of these crops are not grown in New Zealand. Others complement availability gaps in New Zealand's own seasonal production. Products named when import value exceeds \$5m.

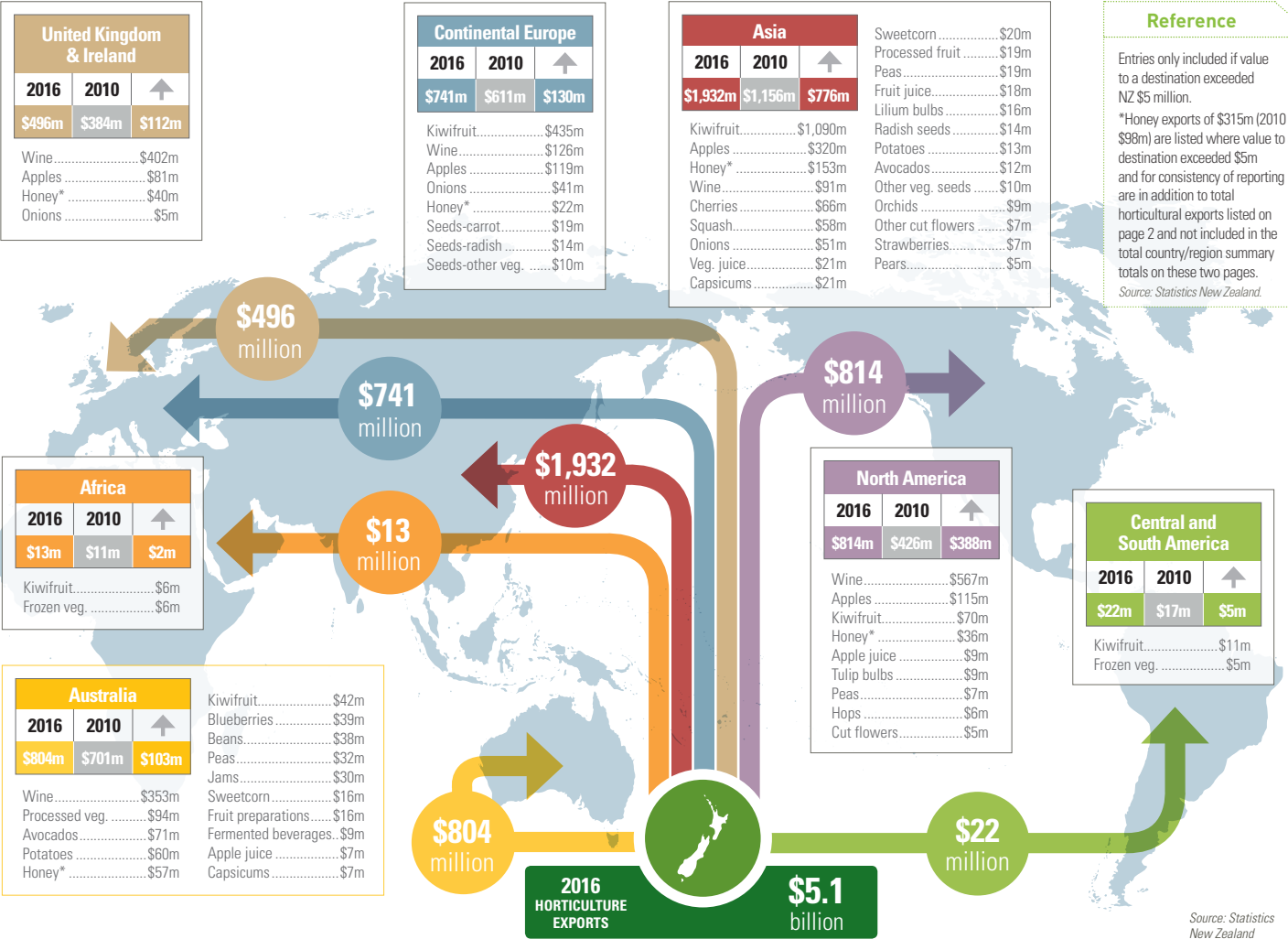
Source: Statistics New Zealand; Overseas Trade statistics for year ended June 2016.

Comparisons of imports and exports 2016 (\$ million)



Source: Statistics New Zealand; Overseas Trade statistics

Export destinations



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

Export destinations for New Zealand horticultural products – trends since 2010 (\$ million, fob)

- New Zealand-grown fruit, vegetables and flowers were exported to 124 countries in 2016 compared with 117 countries in 2010.
- Exports to 34 countries exceeded \$10m (fob) in 2016, up from 25 countries in 2010.
- New Zealand also earned \$122m from horticultural machinery and components exports (2015: \$90m) as well as additional income from royalties and licence agreements.

Trends

- In 2016 New Zealand fruit and vegetable exports to five markets exceeded \$300m (fob) value: Australia, the USA, Japan, China and the UK, with China now exceeding value to the UK. These five export markets accounted for over \$3.0b and 60% of New Zealand's total horticultural exports in 2016.
- Exports to four other countries exceeded \$100m: Taiwan, Canada, Spain and The Netherlands. Horticultural exports to 25 other countries exceeded \$10 million, of which eight countries are in Asia/South East Asia and nine in Continental Europe.
- The diversity of horticultural products exported is apparent in the 21 product groups exported to Asia each between \$5m and over \$1b, and to Australia with 14 categories between \$7m and over \$350m (fob) value, plus over \$200m in natural honey exports to Asia and Australia combined.

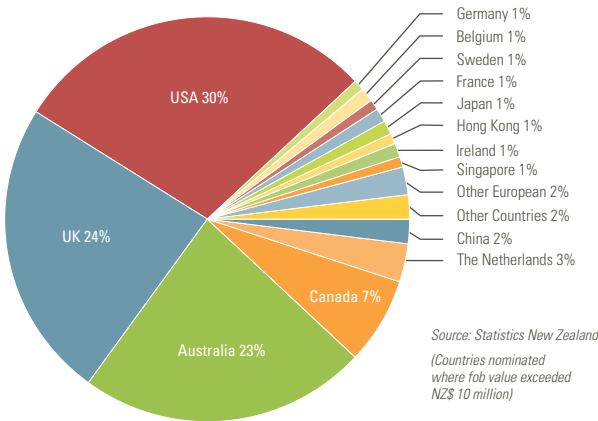
Grape and wine production 2011 & 2016

Variety	Production area (ha)		Production (tonnes)	
	2011	2016	2011	2016
Sauvignon blanc	16,758	21,016	224,412	303,711
Pinot noir	4,803	5,573	31,156	35,661
Chardonnay	3,823	3,211	25,580	29,162
Pinot gris	1,725	2,455	17,787	24,892
Merlot	1,386	1,271	9,092	9,321
Reisling	993	767	6,118	5,937
Gewurtztraminer	313	258	1,836	2,221
Syrah	299	443	1,741	1,756
Cabernet Sauvignon	519	283	1,667	1,537
Muscat varieties	125	36	550	329
Other white vinifera	379	88	2,523	2,496
Other red vinifera	392	273	2,234	2,150
Unknown & hybrids/other	2,085	518	15,644	16,827
Total	33,600	36,192	328,000	436,000

Region				
Auckland/Northland	556	414	1,575	1,359
Waikato/Bay of Plenty	147	16	51	18
Gisborne	2,072	1,448	14,450	15,944
Hawke's Bay	4,993	4,744	35,533	42,958
Wairarapa	882	1,002	3,598	5,049
Marlborough	19,024	24,020	244,893	323,290
Nelson	861	1,169	7,854	10,028
Canterbury/Waipara	1,809	1,436	9,485	12,170
Otago	1,540	1,943	7,104	9,177
Other and unknown	1,716	0	3,457	16,007
Total	33,600	36,192	328,000	436,000

Source: New Zealand Winegrowers Annual Report 2016.

Wine exports by country 2016 (% by value)



→ 90% of New Zealand produced wine was in four varieties: Sauvignon blanc 70%, Pinot noir 8%, Chardonnay 7%, Pinot gris 6%, although more than 17 other varieties were produced. Only 12% of New Zealand wine grapes were red vinifera.

Growth in wine exports and wineries 2005 to 2016



Sources: New Zealand Winegrowers Annual Report 2016

- The 436,000t of wine grapes crushed in 2016 was ahead of the average of 342,000t for the previous five years 2011 - 2015.
- Export volume in 2016 was 213m litres (2015: 209m) with an average value of \$7.6/L (2015: \$6.8/L). Domestic consumption of New Zealand wine was estimated at 56m litres (59m litres average previous 5 years). 37.2m litres of wine were imported in 2016 (77% from Australia, Spain 8%, France 5%), the average for the previous five years being 34.1m litres.
- The 36,200ha of wine grape production in New Zealand is spread across 11 regions, the largest being over 24,000ha in Marlborough and 4,700ha in Hawke's Bay, with five other regions having between 1,200ha and 2,000ha each. The average vineyard area is 17.4ha.
- Average yield of 12.0t/ha was well ahead of the average yield of 9.7t/ha for the previous five years.
- Winery numbers at 675 in 2016 was almost the same as in 2010 (672), but 28 fewer than 2012.

Wine Grenade

The Wine Grenade is a simple, easy-to-use oxygenation device, developed in New Zealand, which is manually activated and lowered into a wine tank. Product trials have shown the Wine Grenade to be highly effective in mimicking oak barrel maturation. This, along with a significant reduction in cost and complexity, make it an attractive oxygenation option for small-to-medium sized winemakers. Wine Grenade is set to make a major contribution to the wine industry by providing consistent quality and exciting new styles with reduced production costs.

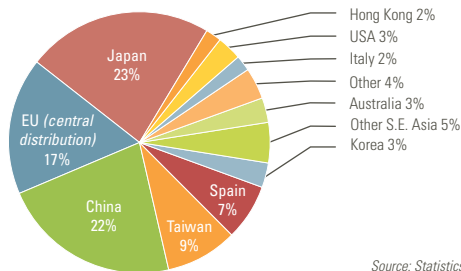


Kiwifruit industry: Zespri Group Ltd
New Zealand grower and chain statistics to 2016

Season (ends 31 March)	2000	2005	2010	2015	2016
Crop volumes (million)					
Trays submitted*	54.2	85.8	107.0	97.3	123.8
Trays sold	51.8	79.7	96.5	95.2	117.1
General Statistics					
Yield (trays/ha)	5,295	7,847	8,546	8,662	10,157
Area planted [†] (ha)	10,234	10,934	12,525	11,233	12,185
Growers/suppliers [‡] (no)	2,681	2,760	2,711	2,540	2,516
Packhouses (no)	118	88	71	50	51
Coolstores (no)	106	89	77	62	64
Orchard Gate Return (\$/ha)	15,366	34,738	39,142	57,369	60,758

* A tray weighs 3.6 kg. [†] Producing hectares [‡] Refers to number of submitters
Source : Zespri International Ltd Annual Review 2015/16.

New Zealand kiwifruit export markets (year to 30 June 2016)



Source: Statistics New Zealand

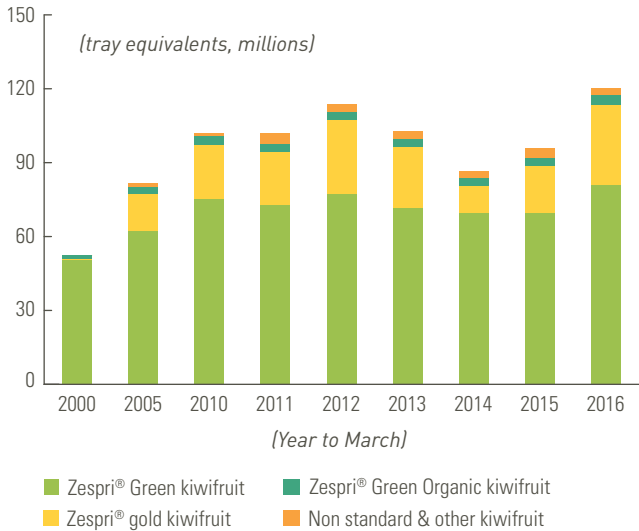
- The value of New Zealand kiwifruit exports in 2016, at \$1.672b fob, was 42% above 2015 and 65% above the average value of \$1.011b for the previous five years.
- In 2015, New Zealand produced kiwifruit were exported to more than 50 countries and of the \$1.089b that went to Asian countries, three Asian countries imported more than \$100m: Japan \$390m (2015: \$275m); China \$373m (\$200m), Taiwan \$154m (\$101m). Kiwifruit to the value of \$435m (\$352m) went to European countries, of which \$108m was shipped to Spain (\$88m).
- The impact of the bacterial canker disease specific to kiwifruit, *Pseudomonas syringae* pv. *actinidiae* (Psa) on kiwifruit production in 2014 is illustrated in the production graph on page 11. Zespri's 2016 Annual Review has this update: "Across the industry, New Zealand kiwifruit growers have responded to the challenge of growing in a Psa environment by improving orchard management practices. Combined with favourable weather conditions last season, the result was a very large crop."
- 'Zesy002', the gold-fleshed kiwifruit marketed as Zespri® SunGold Kiwifruit, has supported the industry's rebound, with Zespri demonstrating it's confidence by increasing crop area by 400ha and stating "SunGold is still a relatively new product with overwhelmingly positive customer and consumer feedback from the market."
- The average orchard gate return per hectare increased to more than \$60,750 (2015: \$57,370).
- In addition to exports from New Zealand of 407,940t* (2015: 487,630t*), under its Global Supply initiative, Zespri procured a further 52,200t (2015: 47,500t) from contracted producers in Italy, France, Korea, Japan, and Australia to maintain year-round availability of its brand.

Consumer kiwifruit choices



Plant & Food Research have been conducting and refining consumer research on the attributes of Zespri kiwifruit cultivars that are most likely to predict consumer choice and willingness to purchase. A recurring observation from studies is the degree to which the concentration of the fruit's dry matter content at harvest time is a good predictor of a consumer's response regarding flavour, even after many months of storage and ripening. The findings suggest that consumers prefer kiwifruit harvested with high dry matter content.

Zespri Group Ltd production profile (TEs) 2000 - 2016



Sources: Zespri International Annual Reviews, years to 31 March; *data from StatsNZ exports, years to 30 June

Apple statistics

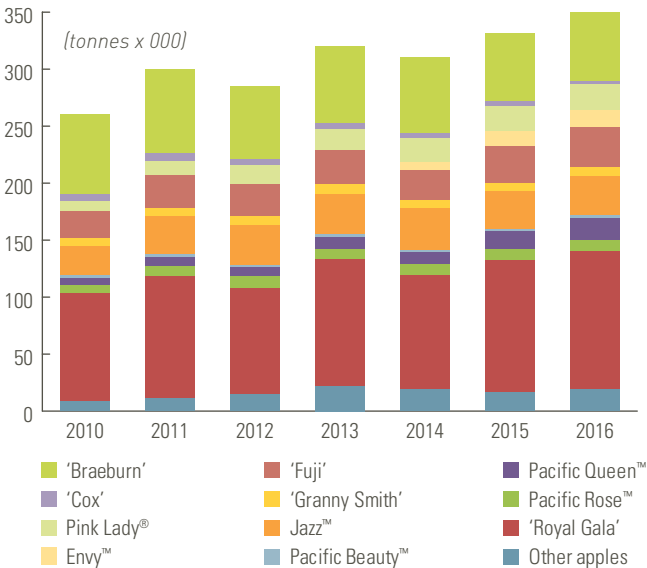
Year ending 31 Dec.	2010	2012	2013	2014	2015	2016
Crop volumes ('000 tonnes)						
National export production	260	285	320	311	331	350
Growing method: IFP	94%	96%	95%	94%	94%	93%
Certified organic	6%	4%	5%	6%	6%	7%
General statistics						
Export FOB \$/TCE (*)	\$22.93	\$23.04	\$27.69	\$29.64	\$32.83	\$37.15
Area planted (ha)	8,630	8,324	8,372	8,429	8,566	8,809
Export orchards (no.)	985	953	953	921	919	953
Export Packhouses (no.)	62	65	61	56	56	55
No. of exporters	95	88	84	76	79	77

IFP: Integrated Fruit Production sustainability; TCE: tray equivalents 18 kg sale weight.
Source: Pipfruit New Zealand Inc., (*) Statistics New Zealand

- In 2015 & 2016 the 'World Apple Review' ranked New Zealand #1 amongst 33 major apple- producing countries after measuring 23 criteria covering production efficiency, industry infrastructure and financial and market factors. The review cited New Zealand's average yield for apples from 2013 to 2015 was 60.7t/ha compared with 32 other apple-producing countries average of 25.4t/ha.
- The World Apple Review tracked 45 different apple varieties and concluded " ...New Zealand has for decades sought to produce apple varieties that can obtain a premium in international markets... With the exception of a small and declining share of 'Granny Smith' apples, New Zealand has no remaining plantings of the traditional majors... 'Gala', 'Braeburn' and 'Fuji' represent past waves of innovation..."
- Pipfruit New Zealand advises the New Zealand industry has " ...developed a mix of proprietary New Zealand varieties that appeal to the new apple consumers particularly in the developing Middle Eastern and Asian markets (that)... have grown from 10 to 50 per cent... " of New Zealand's apple exports.

Apple export production by variety: 2010 – 2016

Source: Pipfruit New Zealand Inc.



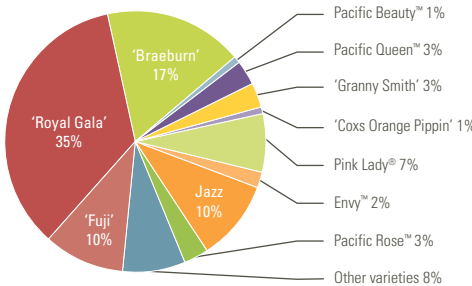
New apple dazzles

'PremA129', which is marketed as Dazzle®, is a new large, red, sweet apple currently being commercialised by Fruitcraft under license from Prevar™. Dazzle is a cross of Sweetie and 'Scired', and its sweet qualities appeal to the growing Asian markets. More than 300,000 trees are already being grown by growers and nurseries in New Zealand.

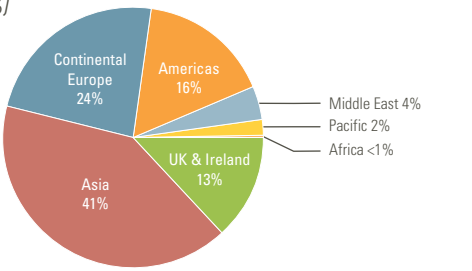


- Pipfruit New Zealand also report " ...A million more new apple trees are being planted across the country as international demand for New Zealand apples continues... resulting in significant economic and social benefits in the growing regions of Nelson, Hawke's Bay, Central Otago, Gisborne, Waikato, Wairarapa and South Canterbury" with " ...millions of dollars injected back into the local economies".

Apple exports by variety (Weight basis, 2016)



Apple export destinations by region (Weight basis, 2016)



Sources for above charts: Pipfruit New Zealand Inc.

Other fresh fruit

Sales value (\$m)

	Growers ^a (no.)	Planted area ^a (ha)	Crop volume ^a (tonnes)	Domestic ^b 2015/16	Export ^c (fob) 2016
Avocados <i>(year to 30 April)</i>	889	3,748	22,906	40.4	91.4 ^d
Berryfruit	240	3,040	24,074	48.4	46.4
- Blackcurrants	32	1,636	8,915	1.0	
- Boysenberries	21	214	3,300	4.5	
- Raspberries	50	150	945	3.0	
- Blueberries	75	700	3,914	18.0	36.5
- Strawberries	110	220	6,500	21.3	9.8
- Other berryfruits		120	500	0.6	
Citrus	330	1,660	30,692	56.6	9.8 ^d
- Grapefruit	18	15	302	0.6	
- Lemons	75	257	6,291	13.0	5.6
- Limes	47	27	410	2.0	
- Mandarins	140	556	11,079	24.0	3.0 ^d
- Oranges	121	783	11,708	16.0	1.1
- Tangelos	28	22	902	1.0	0.1
Feijoa	220	238	1,200	3.8	0.5
Grapes - table		43			0.2
Hops	18	413	794		
Kiwiberries	28	35	200	0.3	4.1
Nashi	20	30	900	1.8	0.1
Nuts		1,344			0.9
- Cashews					
- Chestnuts	100	142	350		
- Macadamias		195			
- Pistachios					0.3
- Hazelnuts		433			
- Walnuts		574			
- Other nuts					0.6
Olives	300	2,172	4,000		
Passionfruit	56	38	125	0.7	1.1
Pears	142	407	4,545		9.5
Persimmons	50	154	1,630	1.5	7.9
Summerfruit	280	1,808	19,002	63.6	75.4
- Apricots	52	318	3,215	8.7	6.5
- Cherries	88	645	5,284	15.0	67.9
- Nectarines	56	328	4,095	16.3	0.1
- Peaches	73	300	3,451	13.5	0.6
- Plums	78	217	2,957	10.1	0.3
Tamarillos	40	100	450	2.4	0.1
Other fruit		250			0.8
Total fresh fruit (excl. Kiwifruit, Grape Wine, Apples)				238.0^e	

Sources: ^aSector estimates, ^bSector estimates of first point of sale values, ^cStatistics New Zealand Overseas Trade Statistics.
^dSector adjusted data for product group reporting period. Blank entries indicate either that the information is not available or items are valued at less than \$100,000.

- Fresh fruit exports increased 13% to 853,300t in 2016 (2015: 756,500t), with the value increasing by over 30% to \$2.6b (\$2.0b).
- Kiwifruit exports \$1.67b (2015: \$1.18b) were 64% of the total fresh fruit export value; apple exports \$692m (\$562m) were a further 27%. Other fresh fruit exports were avocados \$91m^d, cherries \$68m, blueberries \$37m, and 23 other fresh fruit crops with a combined value of \$50m.
- Summerfruit production increased 40% from 13,455t in 2006 to 19,002t in 2016.

Processed fruit

Sales value (\$m)

	Domestic ^a 2015/16	Export ^b (fob) 2016
Apple juice	80.0 ^c	23.3
Avocado oil	2.1	3.9
Blackcurrant concentrate		9.3
Other fruit juices	92.1	15.0
Other fermented beverages		12.3
Dried fruits		4.9
Frozen fruits		21.8
- Blackcurrants		3.3
- Blueberries	2.8	4.9
- Boysenberries	2.7	1.7
- Kiwifruit		7.1
- Raspberries		0.3
- Other		4.5
Fruit preparations		27.7
- Apples		5.7
- Blackcurrants		0.1
- Kiwifruit		2.2
- Fruits mixture preps		13.7
- Pears		0.2
- Other		5.8
Hops	5.8	18.5
Jams, jellies and purees		34.7
Nuts		4.3
Olive oil	12.0	0.7
Total processed fruit		176.4

Fruits used for processing is produced on the orchard areas described in the fresh fruit table. ^aSector estimates of first point of sale values, ^bStatistics New Zealand, Overseas Trade Statistics ^cAuthor's estimate. Blank entries indicate either that the information is not available or items are valued at less than \$100,000.

- A standout summerfruit crop was cherries increasing from 1,622t in 2006 to 5,284t in 2016, and export value increasing from \$9.0m in 2006 to \$68.0m in 2016.
- A New Zealand success in high value fruit exports is blueberries (fresh/chilled/frozen) with 2016 exports of 1,900t and an export value of \$41m. This compares with 2016 blueberry imports of 2,400t and a cif value of \$13m. Fruit imports are primarily crops not grown in NZ or are required to complement availability gaps.

Increasing access for avocados



Expanding export markets for New Zealand avocados requires meeting strict phytosanitary and quality standards. Plant & Food Research designed and developed a three-nozzle high pressure washing (HPW) system which very effectively cleaned fruit, achieving 100% removal of some surface pests and approximately 98% of pests of quarantine concern. Compac® Sorting Equipment Limited now manufacture and market a rotary HPW system incorporating this knowledge and system and the New Zealand avocado industry has voluntarily adopted the use of HPW treatments for all exported fruit.

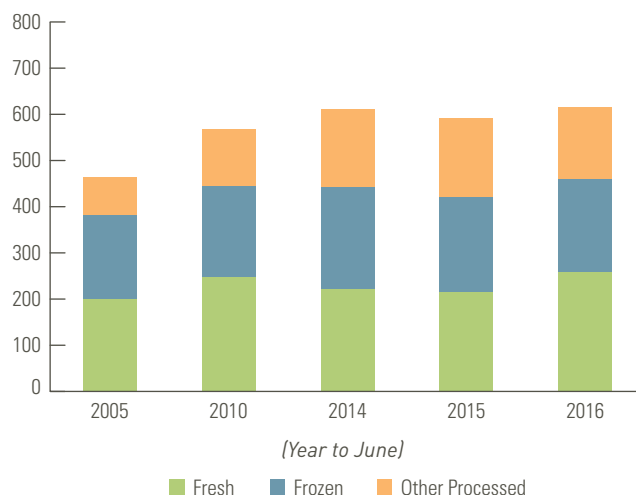
Fresh and processed vegetables

Sales value (\$ million, fob)

	Growers ^c (no.)	Planted ^c area (ha)	Crop volume ^c (tonnes)	Domestic ^c 2016	Exports 2016 ^a	
					Fresh	Processed ^b
Asparagus	50	800 ^c	2,000	8.0	4.4	
Beans	25	1,500 ^c	21,500	25.0		43.2
- fresh	5	300	3,000	6.0		
- processed	30	1,200	18,500	19.0		
Beetroot	52	450	30,000	10.5		
- fresh	42	130	8,000	4.5		
- processed	10	320	22,000	6.0		
Brassicas	125	2,800 ^c	105,000	80.3	2.6	
- Broccoli	75	1,500 ^c	19,000	35.0		
- Cabbage	75	800 ^c	56,000	25.3		
- Cauliflower	25	500 ^c	30,000	20.0		
Capsicums	20	65 ^c	17,000	47.0	28.4	
Carrots	45	1,445 ^c	159,000	56.0		
- fresh	20	800	88,000	40.0	8.6	
- processed	25	645	71,000	16.0		2.3
Cucumbers	50	50 ^c	1,770	20.0		
Eggplant/Aubergines				8.5		
Garlic	8	200 ^c	900	7.0	0.9	
Kumara	46	1,600 ^c	22,000	35.0		
Lettuces	100	1,350		42.0	1.2	
- outdoor	40	1,300 ^c		17.0		
- greenhouse	60	50 ^c		25.0		
Melons	20	273 ^f	4,800	28.0	1.1	
Mushrooms	7	25 ^c	8,500	42.0	1.5	
Onions	95	4,895 ^c	211,510	30.0	112.5	
Peas	442					
- fresh	42					
- processed	400	8,250 ^c	62,000	25.0		84.3
Potatoes	169	10,329 ^c	525,000	90.0	25.5	83.5
Pumpkins	40	1,048 ^f	38,000	13.0		
Shallots	4	30 ^c	1,200		0.5	
Silverbeet/Spinach	15	200 ^c	3,500	12.0		
Squash	25	6,526 ^c	82,725	3.0	58.2	
Sweetcorn	150	4,664 ^f	90,000	29.5	0.1	41.8
- fresh			22,000	11.0		
- processed			68,000	18.5		
Tomatoes	155	770	102,900			
- fresh	140	120 ^c	42,400	107.4	11.1	
- outdoor, processed	15	650 ^c	60,500	9.0		4.1
Truffles ^d	75	70	0.2	0.5		
Mixed vegetables	Made from combinations of the above crops.				32.5	
Dried vegetables	Excluding peas, beans, corn.				8.1	
Vegetable preps					20.2	
Vegetable juices					23.8	
- carrot juice ^d					22.4	
- other veg. juices					1.4	
Other Vegetables ^a		2,457			2.4	12.1
Total	1,700 ^e	50,163 ^f			259.0	355.9

Crops areas are predominantly sector estimates. ^aIncludes taro, celery, parsnips, spring onions, Asian vegetables (excl. Chinese cabbage), yams, witloof, leeks, vegetable shoots, shallots, swedes and some others. ^bProcessing includes freezing, canning, juicing and artificial drying. ^cSector estimates. Blank entries indicate that the information is not available. ^dAuthors' estimates. ^eGrowers produce multiple crops. ^fStatsNZ Production Census crop areas as at 30 June 2012. ^gStatistics New Zealand from export entries.

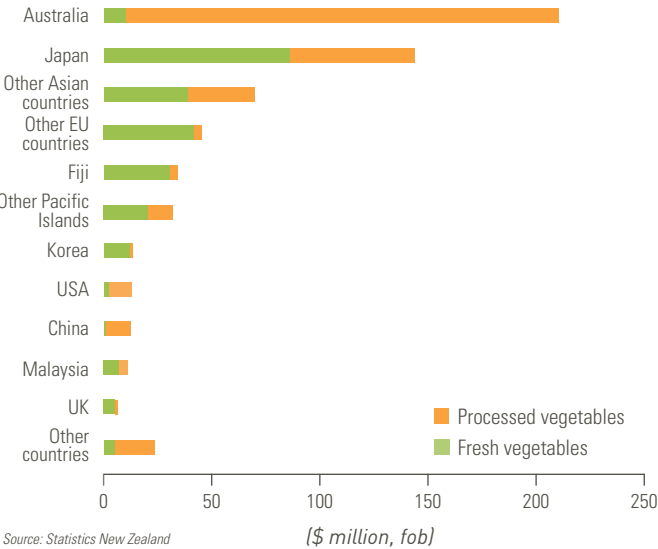
Vegetable exports 2005 – 2016 (\$ million, fob)



Source: Statistics New Zealand

- Total value of vegetable exports in 2016, at \$615m, was \$24m above 2015 with the largest increase in value being onion exports increasing from \$81.4m/ 174,000t in 2015 to \$112.5m/181,500t in 2016.
- In 2016, three vegetable export crops, fresh/frozen/dried or as vegetable preparations, were close to 60% of the value of all vegetable exports: peas \$84.3m, potatoes \$83.6m and sweetcorn \$41.8m. Other frozen vegetables, mixed or singular, were a further \$54.3m (15%), other vegetables both dried or other processes \$68.1m (19%) with juiced vegetables, predominantly carrots, \$23.8m (7%).
- Total volume of vegetable exports from New Zealand in 2016 was 506,200t and almost the same as in 2015.
- Fresh and processed vegetables were exported to 91 countries in 2016 (2015: 76), with more than half (56%) to two countries:
 - 32.6% to Australia: \$200.2m (fresh veg. \$10.1m, frozen \$126.6m [potatoes \$52.2m, mixed veg. \$24.2m, peas \$29.1m], vegetable preparations \$59.3m [of beans: \$31.0m]).
 - 23.4% to Japan: \$143.6m (fresh \$85.7m [squash \$44.9m, capsicums \$20.6m]), frozen \$24.5m, vegetable juice \$18.9m (predominantly carrot).
- New Zealand imported 103,500t of vegetables in 2015 with a cif value of \$212.3m (2014: 96,100t/\$196.9m cif).
- New Zealand imported 107,240t of vegetables with a cif value of \$243.8m (2015: 103,500t/\$212.3m cif) from 74 countries in 2016. Largest volume vegetable imports were 26,500t of preserved tomatoes (Italy 11,800t, the USA 11,300t), 17,000t of frozen potatoes (Continental Europe 7,000t [The Netherlands and Belgium], Australia 6,900t).

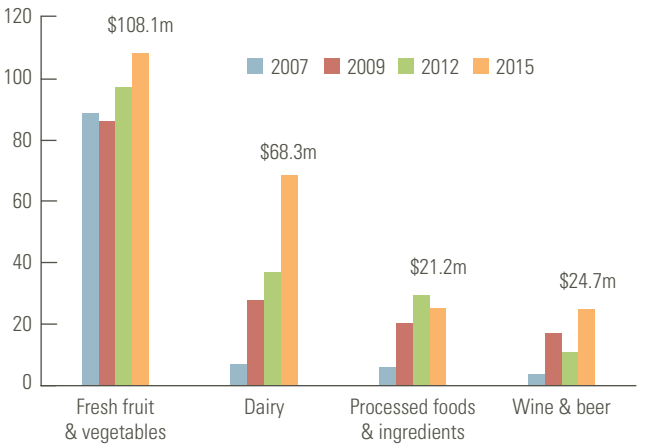
Destinations of New Zealand vegetable exports 2016 (\$ million, fob)



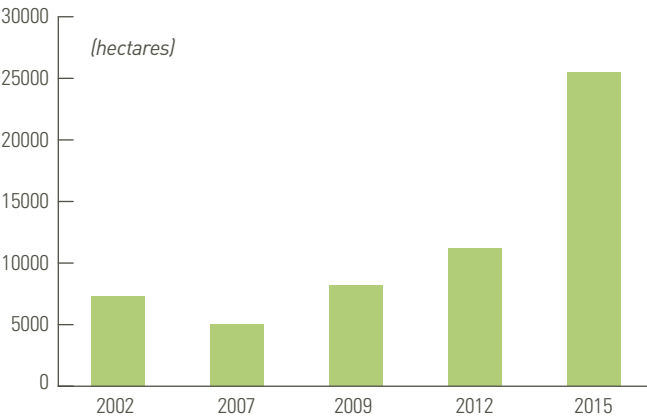
Organic production

- New Zealand horticultural land area under organic certification increased by 128% in the three years from 2012 (11,188ha) to 2015 (25,476ha), reflecting significant growth principally in certified organic pipfruit and vineyard production.
- In 2015 there were 610 organic operations in horticulture, down 5% from 2012.
- Export values 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 domestically consumed, 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



Bringing in the beetroot



Ensuring operational efficiency at the Heinz Wattie's facility in Hawke's Bay means matching the required volume and size of crops coming in for processing to the capabilities and needs of the factory at that particular time. Crop scheduling tools and management models have been developed to help beetroot growers and managers with their decision-making by predicting yield, size, and timing of the crop to ensure the right volume of beetroot at the right time is delivered to the processing facility, and with the right specifications.



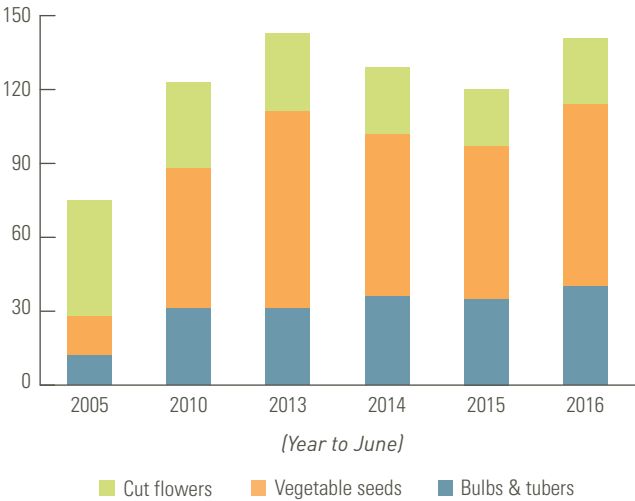
Exports of flowers, plants, seeds and other products (\$ million, fob)

Selected HS Items	1990	2000	2010	2015	2016
Cut flowers					
- Chrysanthemums			0.2	0.1	0.1
- Hydrangeas			2.7	2.8	2.4
- Lilium		1.9	0.2	0.1	0.1
- Nerines		0.6	0.2	0.1	0.1
- Orchids	8.2	22.4	20.8	12.9	14.6
- Paeonies		0.5	1.7	2.0	2.7
- Pittosporum			1.2	0.5	0.6
- Proteaceae	0.5	1.4	0.9	0.3	0.3
- Sandersonia	0.2	3.1	0.2	0.1	0.2
- Zantedeschia (Calla lily)	1.9	7.7	3.7	0.9	1.0
- Other Foliage	0.7	0.6	0.6	0.3	0.2
- Other cut flowers	7.8	8.5	2.7	2.8	4.7
Plants					
- Other live plants	2.5	5.6	6.6	4.8	5.2
Seeds					
- Flower seeds	<0.1	2.1	0.3	0.4	0.2
- Fruit seeds			1.9	2.4	2.8
- Cabbage seeds			5.0	4.7	4.9
- Carrot seeds			7.6	12.2	17.3
- Radish seeds			21.4	23.9	28.5
- Silverbeet seeds				4.0	6.1
- Other veg. seeds	2.1	15.9	23.4	17.4	17.4
- Tree seeds		1.6	1.5	1.0	1.1
Bulbs, tubers, corms					
- Lilium			16.8	24.2	22.7
- Sandersonias			0.7	0.2	0.4
- Tulips			9.6	9.7	16.3
- Zantedeschia (Calla lily)		1.5	3.5	0.1	0.1
- Others	2.0	10.1	0.4	0.5	0.1
Sphagnum moss	11.0	15.3	6.1	5.2	5.1*
Total	36.9	98.8	139.9	134.0	155.2

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

→ In the past decade exports of cut flowers and foliage decreased in value from \$39.2m in 2006 to \$27.0m in 2016. Seeds, however, increased from \$41.8m to \$78.3m (vegetable seeds \$38.6m to \$74.2m) and other bulbs, tubers, corms, live plants and moss from \$45.5m to \$49.8m. 2016 imports in these categories (cif value) were cuts flowers and foliage \$4.6m, seeds \$26.2m (veg. seed \$22.7m), and bulbs and other live plants \$9.7m.

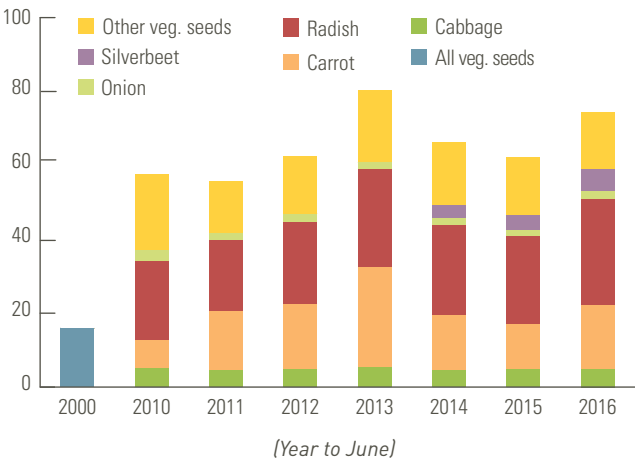
Exports of flowers, seeds and bulbs (\$ million, fob)



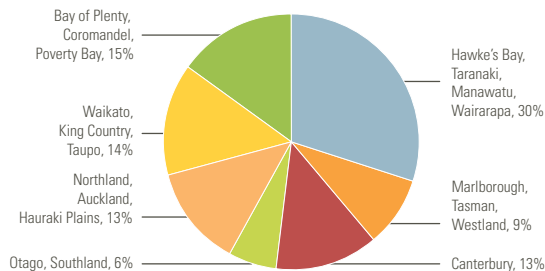
Source: Statistics New Zealand

- Of the \$27.0m of cut flowers exported to 38 countries in 2016, Asia was the largest destination region, at \$15.7m (2015: \$12.5m), dominated by Japan, at \$11.9m (orchids \$8.1m). The next largest destination market was the USA, at \$4.6m, exports to all other countries each being less than \$2.0m fob value.
- Vegetable seed valued at \$74.3m in 2016 (2015: \$62.2m) was exported to 63 countries (2015: 46 countries), having been only \$15.9m in 2000 although a record \$80.3m in 2013. Largest export value destinations were: Continental Europe \$42.8m (The Netherlands \$25.4m, Germany \$5.6m), Asia \$24.0m (Korea \$8.5m, Japan \$5.3m, Viet Nam \$3.2m) and the USA \$3.3m. Exports to the 57 other countries were each less than \$3.0m fob.

Vegetable seed exports (\$ million, fob)



New Zealand honey production 2016 (19,885 tonnes)

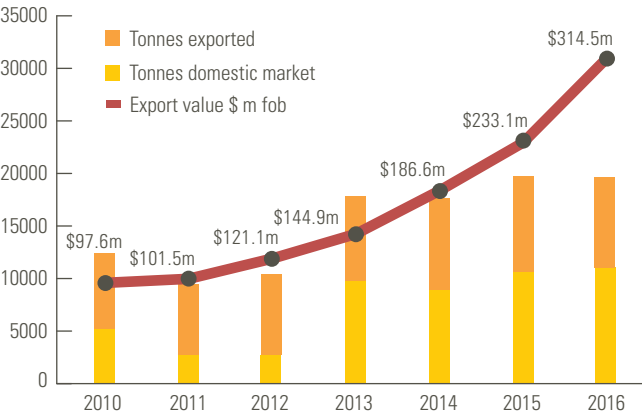


Source:ASUREQuality Ltd

A vital contributor to horticulture

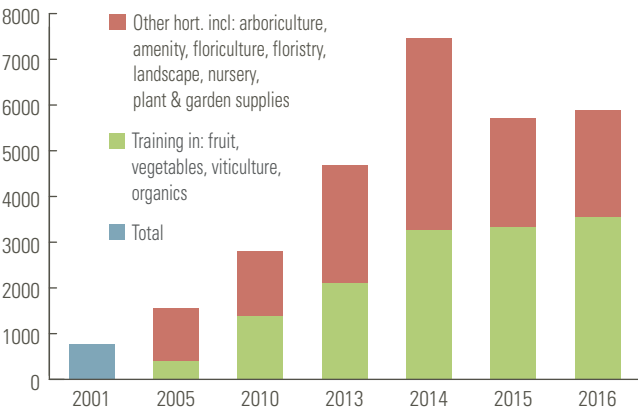
- Bees are crucial to New Zealand's primary sector, pollinating approximately one-third of our food sources and playing a significant role in determining crop yields.
- Honey production in 2016, at 19,885t (2015: 19,710t), was 4,891t and 33% above the previous five year average of 14,994t.
- In 2016 New Zealand's honey exports went to 50 countries valued at \$314.5m fob (2015: \$233.1m). Retail packs were 86% by weight. Exports to seven countries exceeded \$20m fob value: Australia \$56.9m (2015:\$33.1m), China \$52.7m (\$36.7m), Hong Kong \$39.5m (\$28.0m), the UK \$38.7m (2015 \$45.2m), Japan \$31.5m (\$17.5m), the USA \$27.9m (\$18.0m), Singapore \$22.1m (\$15.8m). In 2015 honey exports to only four countries exceeded \$20m each.
- As at June 2016 New Zealand's 6,735 registered beekeepers (2015: 5,551) had 684,046 hives, an increase of 108,174 (19% on 2015). In 2010, New Zealand had 376,673 hives and produced 12,553 tonnes. Export of natural honey in 2010 was valued at \$97.6m fob.

New Zealand natural honey exports 2010 - 2016



Source: Statistics New Zealand

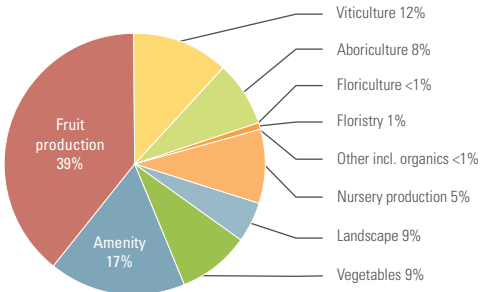
People in horticultural training, per year 2001 - 2016



Source: Primary ITO

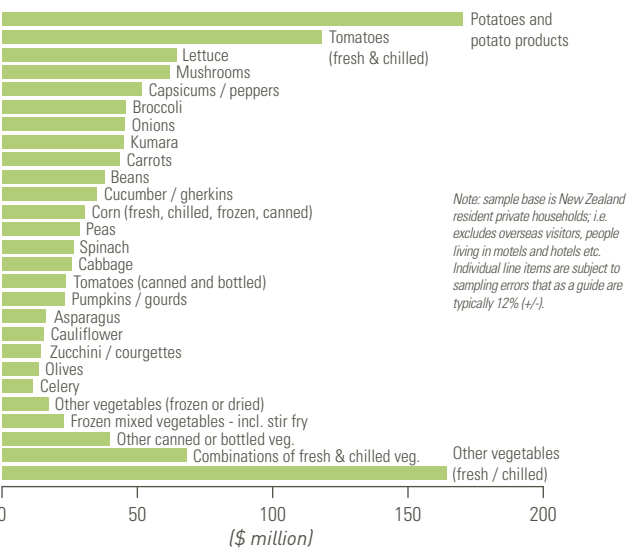
- In 2016 the total number of trainees in the different fields of horticulture was 5,894 compared with 5,716 in 2015 and 7,449 in the exceptional 2014 year.
- Trainee numbers in the subjects of fruit, vegetables and viticulture (wine grape) production, plus the small number in organics (7 in 2016) totalled 3,546 in 2016 which was a new record; 2015: 3,340; 2014: 3,269. The average number of trainees in produce production subjects for the five years from 2011 to 2015 was 2,203 per year.

Trainees by category (year to December 2016)

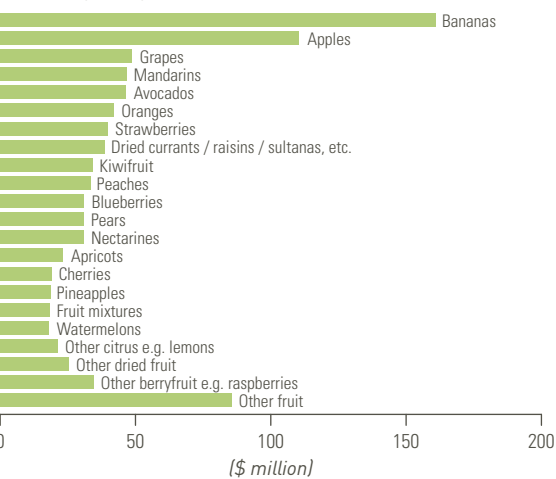


Source: Primary ITO

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), 2016

In 2016 New Zealand households spent an estimated \$800m on fresh and chilled fruit
→ \$160m on processed fruit
\$3.0b on fruit, vegetables and wine, with:
→ \$930m on fresh and chilled vegetables
→ \$330m on processed vegetables
→ \$820m on wine

Source: Statistics New Zealand: triennial Household Economic Survey (HES), 2016 . N.B. survey is of households only and excludes overseas visitors, people living in hotels and motels, etc., and excludes restaurants and takeout meals.

Investment in the horticultural industries, 2016

	Crop area (ha)	On-farm (\$ million)	Off-farm (\$ million)	Total (\$ million)
Apples, pears & nashi	9,825	1,277	878	
Wine grapes	36,700	6,813	17,033	
Kiwifruit	12,260	5,027	3,456	
Summerfruit	2,080	166	114	
Avocados	3,950	383	211	
Citrus	1,740	139	77	
Berryfruit	3,055	244	168	
Nuts	1,340	107	29	
Olives	2,280	182	125	
Other subtropical fruit	700	56	23	
Hops	415	33	82	
Other fruit	860	69	28	
Total fruit	75,205	\$14,498	\$22,226	\$36,724
Potatoes	10,330	620	298	
Peas & Beans	9,750	634	305	
Onions	5,140	308	148	
Squash	6,525	457	220	
Sweetcorn	4,900	294	141	
Broccoli, cabbages & cauliflowers	3,640	218	105	
Carrots	1,880	113	54	
Asparagus	850	51	25	
Lettuce	1,485	89	49	
Other vegetables	6,000	360	149	
Total vegetables (outdoor)	50,500	\$3,144	\$1,494	\$4,638
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 floriculture & protected crops	1,455	1,725	423	\$2,148
Total horticultural	127,160	\$19,367	\$24,143	\$43,510

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 2016 (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 4.5% 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 \$43b inclusive of off-farm postharvest facilities for cleaning, sorting, packaging, storing and processing produce from an estimated 127,160ha 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 81% of the total on-farm and off-farm investment in New Zealand horticulture.

Distribution of fruit by Regional Councils (area planted, ha) As at 30 June 2012

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 reflected in 2012 Agricultural Production Census: 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 795 ha above 2002 census of 1,964 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 ha is -25% (-1,564 ha) but onions increased +24% (+1,124 ha) and carrots by +55% (+127 ha); peas & beans (predominantly peas) increased 5% since 2007, but the census area is 14% (1,250 ha) less than the 2002 figure of 9,108 ha. C - Some data have been suppressed for reasons of respondent confidentiality. + Incomplete data set because some crop/ha are 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	Cab & Caulis	Carrots	Peas & Beans	Lettuce	Onions	Potatoes	Squash	Sweet corn	Other veg	Total veg
Year ended 30 June 2012												
Northland	C	28	6	2+	C	C	C	22	C	84	1,354	1,496+
Auckland	C	940	194	79	469	1,621	1,444	C	C	38	572	5,357
Waikato	459	75+	166	2+	73	1,837	2,074	C	C	42	298+	5,026+
Bay of Plenty	C	53+	0	C	0	C	C	C	C	15	94+	162+
Gisborne	0	C	0	283+	C	C	C	2,406	2,493	429+	5,611+	0
Hawke's Bay	110	85	C	2,506	10	662	589	3,248	1,050	537+	8,797+	3
Taranaki	C	C	C	C	C	C	C	23	C	C	C	23+
Manawatu-Wang.	173	859	429	43	339	392	1,260	241	23	472+	4,231+	C
Wellington	0	39+	C	1+	41	C	19	C	C	C	32+	132+
Tasman-Nelson	4	346+	C	C	132	55+	13+	14+	37+	203+	804+	50+
Marlborough	C	0	C	C	742	C	C	2	C	601	1,09+	1,454+
West Coast	0	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	C
Otago	C	149	C	C	25	4	153	C	C	2	333	C
Southland	0	C	300	0	C	C	210	0	0	C	510	C
Other	45	1,238	129	333	138	167	28	942	63	560	2,723	84
Total New Zealand	820	3,622	2,047	7,858	1,250	5,718	11,578	6,837	4,664	5,313	49,707	572
2007	871	3,875	1,320	7,515	1,309	4,594	10,050	7,774	6,210	6,261	49,779	585
%	-6%	-7%	55%	5%	-5%	24%	15%	-12%	-25%	-15%	0%	-2%

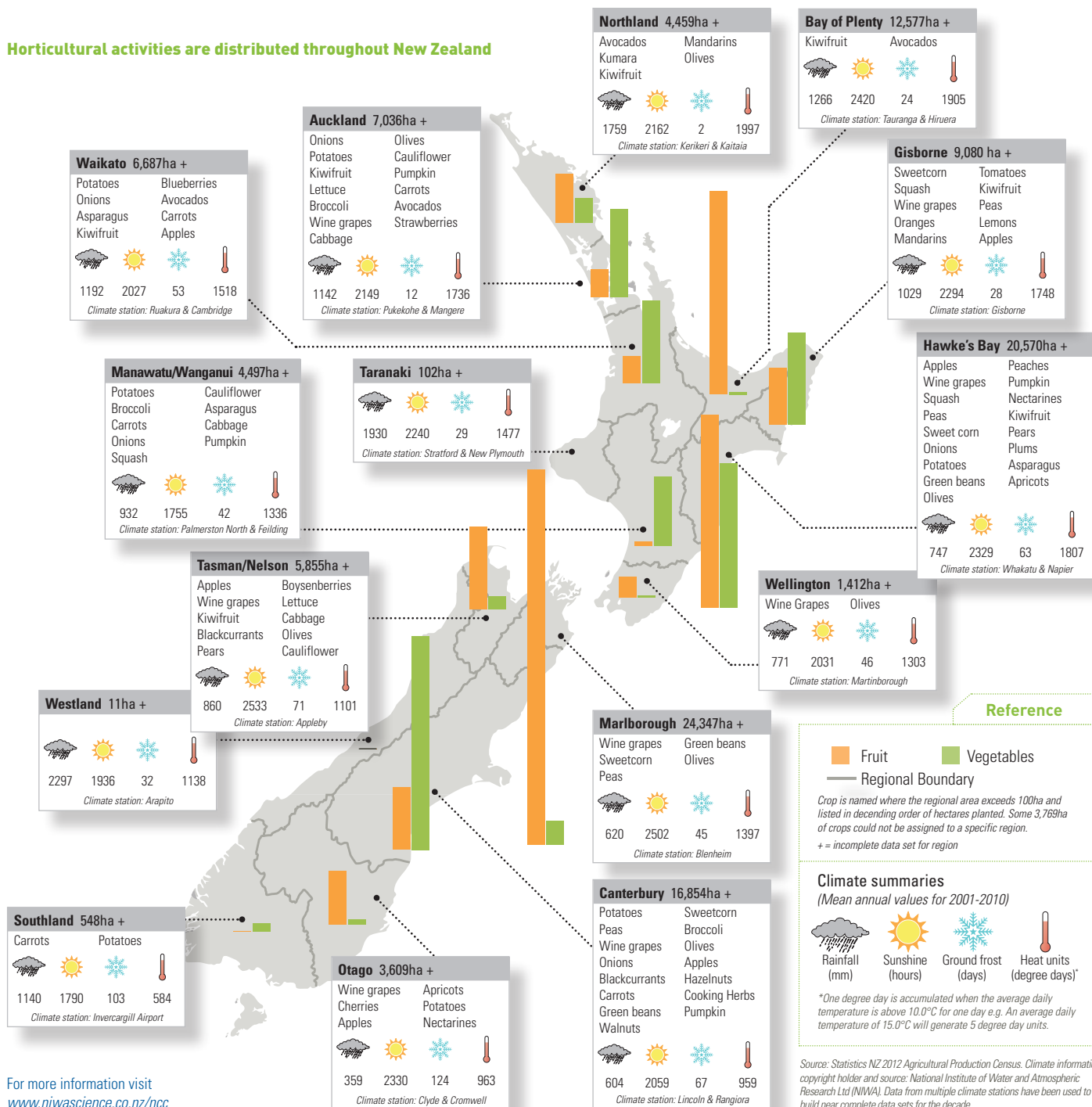
(1 ha = 10,000 m²)

See above notes

For more information visit www.statistics.govt.nz

Regional resources

Horticultural activities are distributed throughout New Zealand



For more information visit
www.niwasience.co.nz/ncc

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FOR YOUR SECTOR



HORTICULTURE



WINE



SEAFOOD



FOOD &
BEVERAGE



CROPPING

plantandfood.co.nz/growingfutures



VISION

**Healthy food
for all forever**

MISSION

**Creating an enduring
environment where
growers prosper**

PURPOSE

**Enabling, promoting and
advocating for growers
in New Zealand to
achieve the industry goal
(currently a \$10 billion
industry by 2020)**

**Focused on delivering growers value.
We have your back in Wellington.**

hortnz.co.nz





Kiwis leading the way in efficient irrigation practice

SMART
IRRIGATION

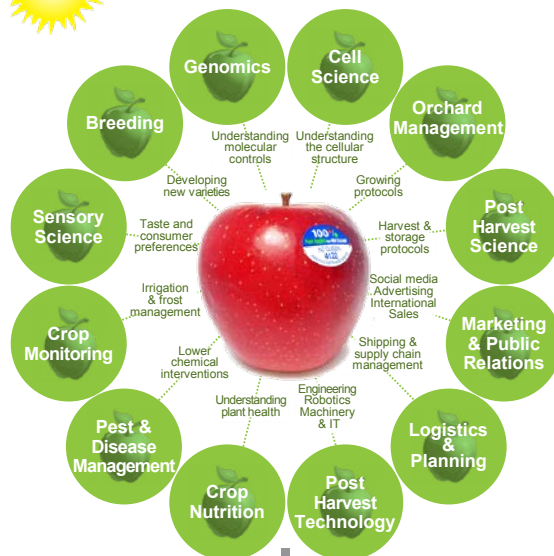
Check out our SMART site at:

WWW.SMARTIRRIGATION.CO.NZ

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NEW ZEALAND

New Zealand APPLES

it takes more than **fresh air & sunshine** to grow the **world's best...**



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HORTICULTURE

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Pure Apples
from NEW ZEALAND





RESEARCH
& DEVELOPMENT



EDUCATION
& TRAINING



SCHOLARSHIPS



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 NZ Horticulture Trust is proud to be supporting the Horticulture, Viticulture and Nursery sectors in NZ.



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We work on behalf of members and the pan-produce industry to provide valuable relevant services including:

- Food Safety and Traceability Committee
- Fruit in Schools Management
- Health and Nutrient Claims
- Nutrition Information Panels
- Biosecurity
- Communications and Public Relations
- International Connections
- Research Projects and Pilots
- Supporting the 5+ A Day Charitable Trust to raise awareness and consumption

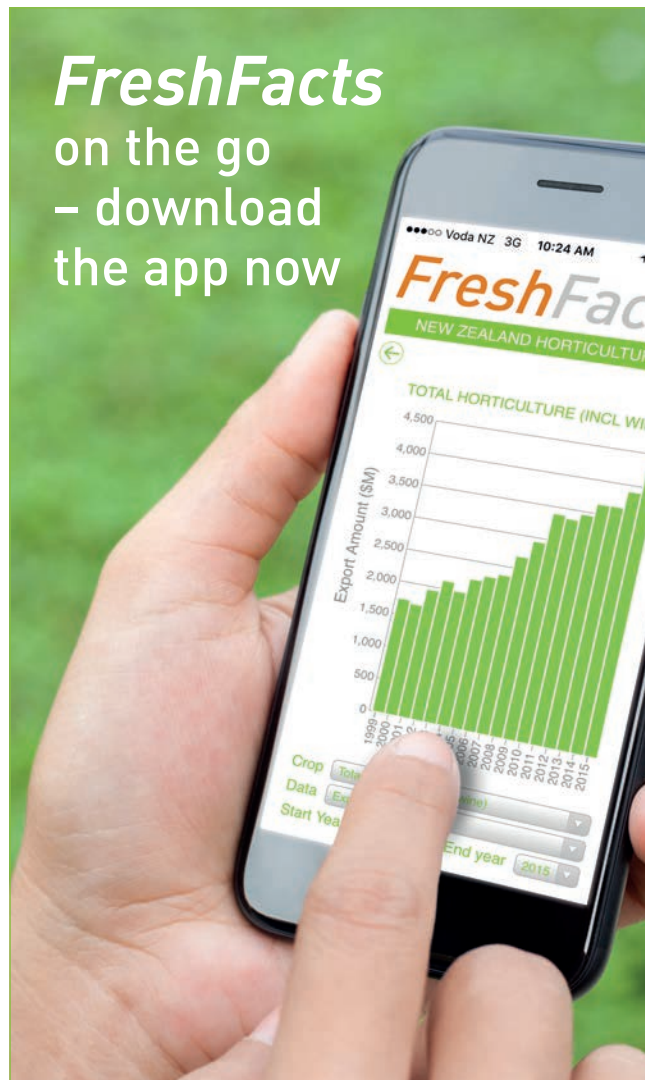
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Gratefully acknowledge contributions made by the following organisations:



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ISSN 1177-2190