

*Fresh*Facts

NEW ZEALAND HORTICULTURE

2014





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Reporting basis: unless stated otherwise, all statistics are for the year ending 30 June 2014 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, www.plantandfood.co.nz

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ISSN 1177-2190 ISBN 978-0-9876680-6-6

Cover photograph: 'Zesy002', colloquially known as Gold 3 and marketed as Zespri® SunGold Kiwifruit

New Zealand horticulture – sustainable success

The horticulture industry continues to grow. It is a remarkable achievement that exports have more than doubled since Fresh Facts was first published in 1999. Total horticultural exports are now close to \$4 billion, and total produce value exceeds \$7 billion.

Wine continues to be our most valuable horticulture export, returning \$1.3 billion, and apple exports have exceeded \$500 million for the first time. In addition to the success of our crops, record numbers are now being trained in horticultural fields – with the Primary Industries Training Organisation reporting a 58% increase in trainees to 7,449 in 2014 – and investment in horticulture is now calculated to be in excess of \$36.5 billion.

If we look at the productivity of our horticultural land, the value of our horticultural exports (\$3.9 billion from 123,000 hectares) equates to more than three times the comparative return achieved by dairy merchandise exports (\$16.9 billion from 1.7 million hectares).

New Zealand's success continues to be the result of hard work and a keen understanding of our markets. Science and innovation are employed throughout the value chain, allowing our sectors to deliver produce that commands a premium, meets increasingly stringent phytosanitary and sustainability requirements, and offers safe, convenient, high quality food for discerning consumers.

Plant & Food Research is proud to support the horticultural industry, working with our sectors to continue delivering success for the industry and for New Zealand.

Peter Landon-Lane
CEO, Plant & Food Research

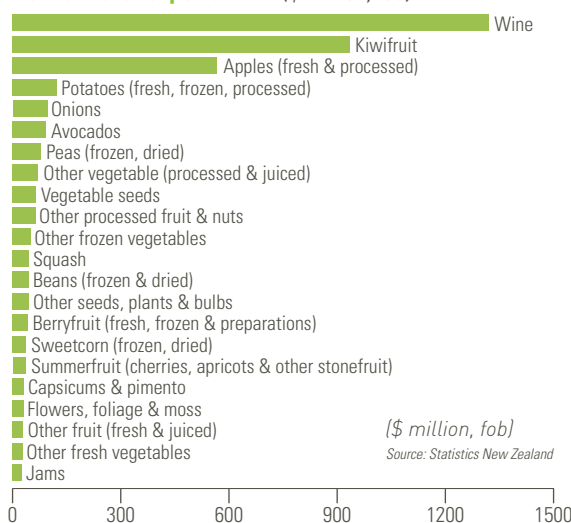
Horticultural exports (\$ million, fob)

Year ended June	1985 ^a	1995 ^b	2005 ^b	2010 ^b	2013 ^b	2014 ^b
Fresh fruit						
- Apples	108.2	343.6	387.0	324.6	475.3	536.4
- Kiwifruit	171.9	320.8	720.2	995.7	934.0	930.5
- Avocados	n/a	n/a	29.0	59.9	33.7	93.0
- Other fresh fruits	28.4	57.6	51.5	74.7	80.4	96.4
Total fresh fruits	308.5	722.0	1,187.7	1,454.9	1,523.4	1,656.3
Processed fruits						
- Wine	3.0	42.0	432.7	1,036.8	1,202.4	1,321.4
- Juices - fruit	9.6	30.5	34.5	31.7	50.5	54.6
- Jams	n/a	n/a	18.1	48.4	33.8	25.8
- Other processed fruits	40.3	44.3	49.2	75.1	78.1	91.0
Total processed fruits	52.9	116.8	534.5	1,192.0	1,364.8	1,492.8
Fresh vegetables						
- Onions	17.7	92.6	61.6	113.4	90.8	97.1
- Squash	14.6	57.7	72.1	53.2	50.7	45.9
- Other fresh vegetables	11.6	49.8	66.3	81.1	84.4	78.0
Total fresh vegetables	43.9	200.1	200.0	247.7	225.9	221.0
Processed vegetables						
- Peas (frozen)	22.0	34.3	36.9	72.9	79.7	79.8
- Potatoes (frozen)		14.1	56.9	82.0	94.5	105.4
- Sweetcorn (frozen/dried)	9.5	30.6	43.4	38.0	38.3	38.3
- Mixed vegetables (frozen)	4.6	23.9	36.0	36.1	40.8	38.8
- Other vegetables (frozen)			16.4	16.4	23.6	22.7
- Other vegetables (dried)			25.5	8.4	7.6	7.8
- Vegetable juices			6.6	19.4	31.2	32.1
- Other processed vegetables	20.9	75.6	42.6	47.9	62.0	64.0
Total processed vegetables	57.0	178.5	264.3	321.1	377.7	388.9
Other horticultural exports						
Flowers & foliage	10.5	49.9	38.5	35.1	32.4	26.6
Vegetable seeds	n/a	n/a	30.2	57.4	80.2	66.2
Seeds, plants & bulbs etc.	2.1	17.4	42.1	41.3	40.3	45.2
Sphagnum moss	6.3	17.3	8.8	6.1	4.6	4.5*
Total other horticultural exports	18.9	84.6	119.6	139.9	157.5	142.5
Total exports in current \$	481.2	1,302.0	2,306.1	3,355.6	3,649.3	3,901.5
Horticultural exports						
as % of NZ merchandise exports	4.4	7.0	7.5	8.3	8.0	7.6

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

- Total horticulture merchandise exports in 2014 were over \$3.9 billion, an increase in value of nearly 7 percent on 2013 horticultural produce exports.
- Four horticulture crops, (i) wine, (ii) kiwifruit, (iii) apples (fresh & processed), and (iv) potatoes (fresh, frozen & processed), were collectively 76% of the value of New Zealand's horticultural produce exports in 2014 with wine dominating at close to 34% of the 2014 total.
- Increased export values of greater than \$10m were in apples (\$61m/+13% on 2013), avocados (\$59m/+176%), wine (\$119m/+10%), other processed fruit (\$13m/+17%) and potatoes (\$11m/+12%). Other major export crops were onions at \$97m and processed peas \$80m. Vegetable seed exports, dominated by radish seed and carrot seed, fell \$14m (18%), but at \$66m vegetable seeds are significant exports.
- Land under horticultural crop cultivation in New Zealand is calculated to be in excess of 123,000 hectares.

Horticultural exports 2014 (\$ million, fob)

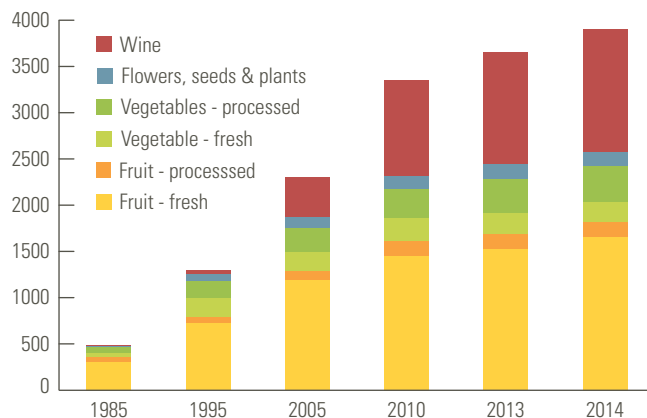


- Combined domestic sales value of horticulture products are calculated to exceed \$3.2 billion and exports of \$3.9 billion has the value of New Zealand's horticultural outputs exceeding \$7 billion for the first time.

In addition to fruit, vegetables, flowers, seeds and bulbs exported as shown in the above table, the New Zealand horticultural sector also exported:

- Natural honey exports of \$187m was an increase of \$42m (29%) on 2013 (2008 \$62.6m). Bees and pollination are an integral part of New Zealand's horticulture.
- Export of horticultural machinery and components, valued at \$75m (fob), primarily for cleaning, sorting and grading fresh and dried fruit and vegetables were exported in 2014 (2008 \$47.2m). Income to New Zealand companies in the form of royalties and licence agreements are in addition to these component exports.

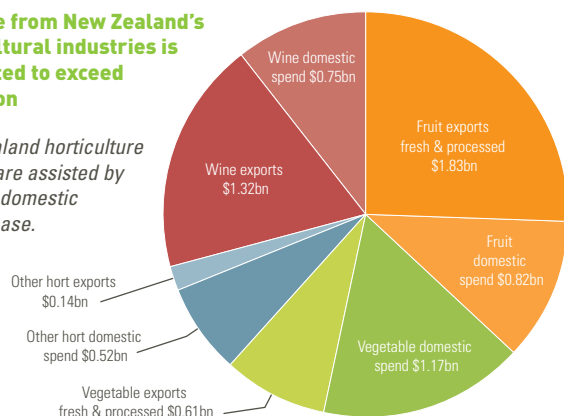
Horticultural exports – Years to June (\$ million, fob)





Produce from New Zealand's horticultural industries is calculated to exceed \$7 billion

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



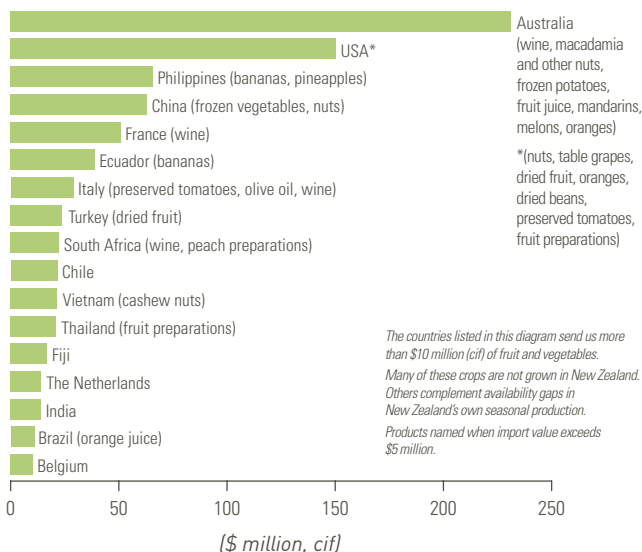
Source: Statistics New Zealand merchandise exports, with domestic market figures derived from triennial Household Economic Survey (HES) 2013 and Stats NZ estimate of mean number of private dwellings at 30 June 2014.

Top 10 export destinations (\$ million, fob)

	Exports 2005	Exports 2013	Exports 2014	
Australia	335	791	872	Wine, avocados, potatoes, kiwifruit, processed veg, beans, peas, honey, jams, blueberries, fermented beverages, sweetcorn, nuts, apple juice, capsicums
USA	232	415	489	Wine, apples, kiwifruit, honey
Japan	472	468	445	Kiwifruit, squash, capsicums, honey, wine
UK	288	349	398	Wine, apples, honey
EU (centralised distribution)	240	228	247	Kiwifruit, apples
China	15	167	175	Kiwifruit, wine, honey
Taiwan	76	116	132	Kiwifruit, apples
Netherlands	116	141	108	Apples, wine, onions, seeds-carrot
Canada	24	98	99	Wine, apples
Spain	82	80	76	Kiwifruit

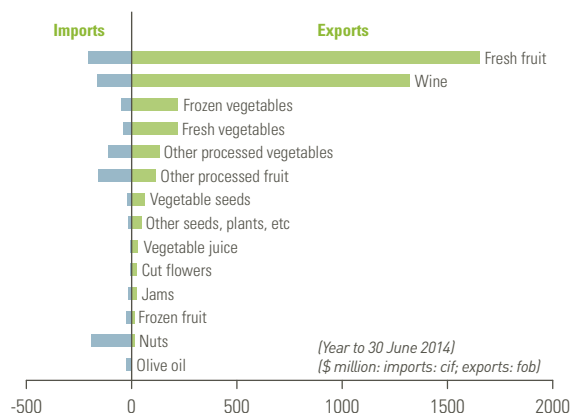
Products listed in descending order of exports and when the value to the destination exceeded \$10 million fob. Consistent with other entries in Fresh Facts, honey exports are not included in totals. Source: Statistics New Zealand.

The origin of fruit and vegetable imports, 2014



Source: Statistics New Zealand; Overseas Trade statistics for year ended June 2014.

Comparisons of imports and exports 2014 (\$ million)



Source: Statistics New Zealand; Overseas Trade statistics



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 124 countries in 2014. In 2005 New Zealand horticultural produce was exported to 108 countries.
- Exports to 28 countries exceeded \$10 million (fob) in 2014, up from 19 countries in 2005.

Trends

- In 2014 New Zealand fruit and vegetable exports to five markets exceeded \$300m (fob) value: Australia, Japan, UK and Ireland, Continental Europe and North America.
- These five export markets accounted for over \$2.45 billion (63%) of New Zealand's total horticultural exports in 2014.
- Of the further 10 countries to which New Zealand exported more than \$50 million of horticultural produce in 2014, seven are in Asia.
- The diversity of horticultural products exported is evident in the 21 product groups, each between \$5m and \$540m, exported to Asia; and to Australia 17 categories between \$5m and \$380m (fob) value.

Source: Statistics New Zealand

United Kingdom & Ireland \$418m (\$295m)

Wine.....	\$335m
Apples.....	\$66m
Honey*.....	\$42m
Onions.....	\$9m

Continental Europe \$600m (\$551m)

Kiwifruit.....	\$308m	Seeds-carrot.....	\$14m
Apples.....	\$136m	Honey*.....	\$14m
Wine.....	\$101m	Seeds-radish.....	\$10m
Onions.....	\$35m	Seeds-other veg.....	\$9m

Asia \$1,172m (\$755m)

Kiwifruit.....	\$539m	Peas.....	\$21m
Apples.....	\$201m	Sweetcorn.....	\$19m
Wine.....	\$86m	Lillium bulbs.....	\$16m
Honey*.....	\$84m	Potatoes.....	\$14m
Squash.....	\$45m	Radish seeds.....	\$11m
Onions.....	\$38m	Avocados.....	\$9m
Veg. juice.....	\$30m	Other veg seeds.....	\$9m
Cherries.....	\$28m	Orchids.....	\$7m
Capsicums.....	\$21m	Other cut flowers.....	\$7m
Processed fruit.....	\$21m	Strawberries.....	\$5m
Fruit juice.....	\$21m		

North America \$589m (\$257m)

Wine.....	\$406m
Apples.....	\$98m
Kiwifruit.....	\$25m
Honey*.....	\$19m
Peas.....	\$11m
Apple juice.....	\$8m
Tulip bulbs.....	\$7m
Nuts.....	\$6m
Pears.....	\$5m

Africa \$15m (\$11m)

\$15m

\$1172m

\$872m

\$589m

\$15m

Central & South America \$15m (\$8m)

Kiwifruit.....	\$7m
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Australia \$872m (\$335m)

Wine.....	\$379m	Blueberries.....	\$21m
Avocados.....	\$84m	Fruit preparations.....	\$18m
Potatoes.....	\$79m	Fermented beverages.....	\$16m
Processed veg.....	\$58m	Sweetcorn.....	\$15m
Beans.....	\$40m	Nuts.....	\$13m
Kiwifruit.....	\$33m	Apple juice.....	\$11m
Peas.....	\$33m	Capsicums.....	\$10m
Honey*.....	\$26m	Apricots.....	\$5m
Jams.....	\$22m		

Reference

Values in bold for each region or country are for 2014 (and those in brackets for 2005).

Entries only included if value to a destination exceeded NZ \$5 million.

*Honey exports are listed where value to a destination exceeded \$5 million and for consistency of reporting are in addition to total horticultural exports listed on page 2 and not included in the total country/region summary totals on these two pages. Source: Statistics New Zealand. Analysis: Martech Consulting

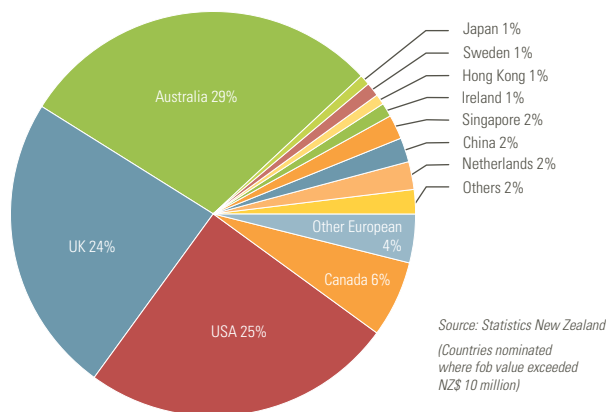
Grape and wine production 2009 & 2014

Variety	Production area (ha)		Production (tonnes)	
	2009	2014	2009	2014
Sauvignon Blanc	16,205	20,027	177,647	310,240
Pinot Noir	4,777	5,569	27,547	36,499
Chardonnay	3,911	3,211	34,393	28,985
Pinot Gris	1,501	2,412	11,410	23,880
Merlot	1,369	1,256	11,723	10,756
Reisling	979	787	6,316	6,013
Gewurtztraminer	311	332	2,123	2,264
Syrah	293	423	1,500	2,178
Cabernet Sauvignon	517	297	2,304	1,742
Muscat varieties	135	45	1,505	455
Other white vinifera	402	112	3,298	4,005
Other red vinifera	393	298	2,663	2,679
Unknown & hybrids/other	1,171	544	2,571	15,304
Total	31,964	35,313	285,000	445,000

Region				
Auckland/Northland	543	416	1,763	1,602
Waikato/Bay of Plenty	147	23	202	63
Gisborne	2,149	1,602	23,093	16,192
Hawke's Bay	4,921	4,816	40,985	44,502
Wairarapa	859	997	4,421	5,743
Marlborough	18,401	22,903	192,128	329,572
Nelson	813	1,115	7,740	10,494
Canterbury/Waipara	1,763	1,462	5,476	10,962
Otago	1,532	1,979	6,218	10,540
Other and unknown	836	0	2,974	15,330
Total	31,964	35,313	285,000	445,000

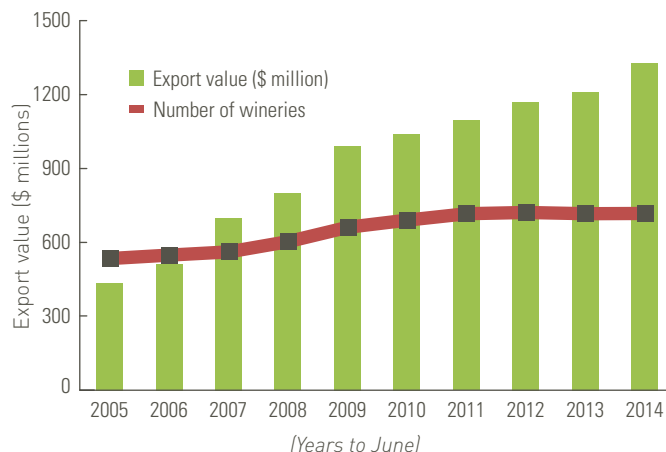
Source: New Zealand Winegrowers Annual Report 2014.

Wine exports by country 2014 (% by value)



- Total wine grape tonnage produced at 445,000 tonnes was 100,000 tonnes and 29% above 2013, partly due to the average yield increasing from 9.8 t/ha to 12.6t/ha. The New Zealand wine industry is in the fortunate position of having increasing market demand and successive vintages of excellent quality and quantity.

Growth in wine exports and wineries 2005 to 2014



Sources: New Zealand Winegrowers Annual Report 2014.

- The value of wine exports increased by 10% over 2013 values, with three export markets dominating: UK/Europe 33%, USA & Canada 31% and Australia 29%. Exports to Asia/South East Asia were 6% of the total wine exports by value.
- Domestic sales of New Zealand wine were estimated at 50m litres. Imported wines were 40.7m litres with 85% from Australia. *Source: NZ Winegrowers*
- 90% of New Zealand produced wine is in four varieties: Sauvignon blanc 70%, Pinot noir 8%, Chardonnay 7%, Pinot gris 5%, although more than 17 other varieties are produced. 13% of New Zealand wine grapes are red vinifera.
- The number of wineries in New Zealand has stabilised at close to 700 with average tonnes crushed per winery increasing from 395t in 2010 to 636t in 2014.

Unique yeasts for winemaking

Characterising the microbiological population found in New Zealand vineyards has identified strains of yeasts unique to the local environment. These yeasts can change the volatiles produced in the fermentation process and potentially influence the complexity and palate weight, providing one way for winemakers to produce distinctive characteristics in the finished wines.



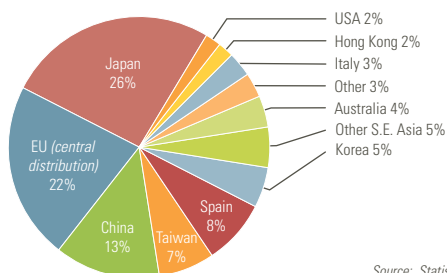
Kiwifruit industry: Zespri Group Ltd New Zealand grower and chain statistics to 2014

Season (ends 31 March)	2000	2005	2010	2012	2013	2014
Crop volumes (million)						
Trays submitted*	54.2	85.8	107.0	119.5	105.7	87.8
Trays sold	51.8	79.7	96.5	109.1	101.3	86.1
General Statistics						
Yield (trays/ha)	5,295	7,847	8,546	9,556	8,621	8,023
Area planted [†] (ha)	10,234	10,934	12,525	12,502	12,263	10,944
Growers/suppliers [‡] (no)	2,681	2,760	2,711	2,662	2,636	2,350
Packhouses (no)	118	88	71	63	59	54
Coolstores (no)	106	89	77	79	76	68
Orchard Gate Return (\$/ha)	15,366	34,738	39,142	45,206	51,153	49,385

*A tray weighs 3.6 kg. [†] Producing hectares [‡] Refers to number of submitters

Source: Zespri Group Ltd. Annual Review.

New Zealand kiwifruit export markets (year to 30 June 2014)



Source: Statistics New Zealand

- The value of kiwifruit exports in 2014 at \$931m fob was just 0.4% less than 2013 (\$934m) despite Zespri grower production being close to 16% less than 2013. The value of kiwifruit exports has been above 2014 value level since 2009.
- Much of the reduction in volume was in Zespri® Gold variety that fell to 11.1m tray equivalents (TEs) (2013: 25.0m TEs), the lowest volume of that variety since 2004 (10.4m TEs). Whilst token quantities of Zespri® Gold were exported 1998 to 2000, commercial export volumes commenced in 2001 with 4m TEs.
- Zespri International reported that 2013/14 has been the season when the bacterial canker disease specific to kiwifruit, *Pseudomonas syringae* pv. *actinidiae* (termed Psa), has had the greatest impact and is likely to have been the bottom of the Psa cycle. Its preferred replacement, known as Gold3, is being viewed positively. At March 2014 only 500 ha remained of 'Hort16a', the original Gold variety and the variety most impacted by Psa, with more than 4,000 ha of Gold3 grafted or planted.
- In 2014, New Zealand produced kiwifruit was exported to 47 countries with 10 countries each importing more than \$20 million fob value (same as 2012 and 2013).
- Recognising that approx. 70% of kiwifruit is sold in the same continent in which it is grown and over 80% of global sales are in the northern hemisphere, to maintain year-round availability of its brand, Zespri Global Supply increased its non-New Zealand origin supply to 11.2m TEs in 2014 with fruit procured under one global standard from contracted producers in Italy, France, Korea, Japan, and Australia.

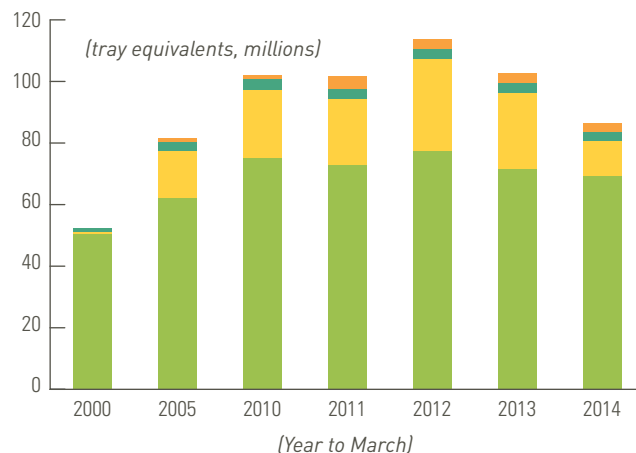
Sources: Zespri International and Statistics New Zealand

Proven health benefits



Zespri Green Kiwifruit has been scientifically proven to contribute to normal bowel function, and a self-substantiated health claim has been filed under new food labelling regulations. The health claim, the first in the world for fresh fruit, is based on ten years of data from clinical trials and other research, and will support Zespri's global health communications to consumers.

Zespri Group Ltd production profile (TEs) 2000 - 2014



■ Zespri Green Kiwifruit
■ Zespri Green Organic Kiwifruit
■ Zespri Gold Kiwifruit
■ Non standard & other kiwifruit

Source: Zespri Group Ltd. Annual Reports & Annual Reviews

Apple statistics

Year ending 31 Dec.	2009	2010	2011	2012	2013	2014
Crop volumes ('000 tonnes)						
National export production	303	260	300	285	320	311
Growing method: IFP	92%	94%	94%	96%	95%	94%
Certified organic	8%	6%	6%	4%	5%	6%
General statistics						
National IFP weighted FAS returns (\$/TCE)	\$20.52	\$22.93	\$21.79	\$23.04	\$27.69	\$29.64
Area planted (ha)	8,484	8,630	8,470	8,324	8,372	8,429
Export orchards (no.)	1,006	985	976	953	953	921
Export Packhouses (no.)	65	62	70	65	61	56
No. of exporters	95	90	90	88	84	76

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

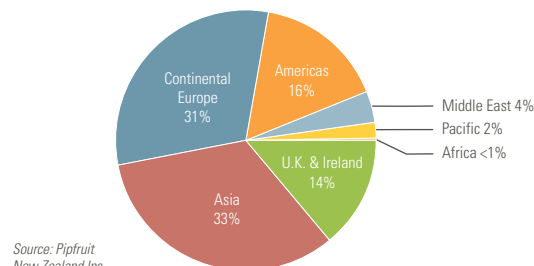
- The value of apples exported in 2014 was valued at \$536m fob (+ 13% on 2013 \$475m) and the highest in the past decade despite the 2014 export apple crop volume being partly impacted by hail strike and down 2.8% on 2013.
- The planted area for apples increased by 57 hectares (+ 48 ha in 2013) continuing the reversal of previous trend of decreasing planted area of apples. 8,429ha planted area in apples in 2014 was 67% of the 2004 figure of 12,585ha.
- Pipfruit New Zealand Inc. report that New Zealand growers are responding to market demands, replacing Braeburn with varieties such as Envy™, Ambrosia, Rockit®, HoneyCrisp, Smitten®, Sweetango™, Kanzi®, and Koru®.
- Further consolidation of export packhouse facilities took place in 2014 with the number of packhouses at 56 compared to a decade earlier (2004) when there were 102 packhouses for pipfruit. In 1999 the pipfruit sector had 150 packhouses and production of 547,000 tonnes. Apple production peaked in 2000 at 620,000 t.

Apple export production by variety: 2008 - 2014

Source: Pipfruit New Zealand Inc.

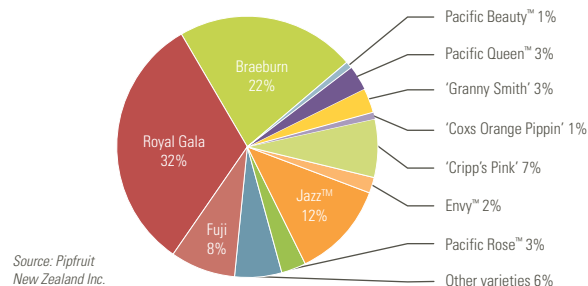


Apple export destinations by region (Weight basis, 2014)



Source: Pipfruit New Zealand Inc.

Apple exports by variety (Weight basis, 2014)



Source: Pipfruit New Zealand Inc.

- New Zealand apple exports in 2014 went to 64 countries (60 in 2004) of which eight imported more than \$20m fob of apples from New Zealand. In the past decade the destination mix has changed: UK/Europe 29% in 2014 (2004 67%), Asia 45% (2004 11%); USA & Canada 18% (2004 20%).

Pears with the best of East and West

A new category of interspecific pears, marketed under the Piqa® brand, will, by 2023, generate exports valued at an estimated \$60 million.

PIQA®BOO® brand fruit, the first New Zealand-grown pear in the range, is a cross between Asian and European pears. The new fruit has a novel shape, colour and flavour that appeals to consumers, and the fruit stores better than traditional European varieties.

The new cultivars are being commercialised globally by Prevar™ Limited, and are marketed with the promise of being "delightfully exotic".



Other fresh fruits

Sales value (\$m)

	Growers ^a (no.)	Planted area ^a (ha)	Crop volume ^a (tonnes)	Domestic ^b 2013/14	Export ^b (fob) 2014
Avocados	769	3,661	26,933	33.0	93.0
Berryfruit	240	2,895	21,547	36.0	29.3
- Blackcurrants	34	1651	8,032	1.0	
- Boysenberries	21	204	3,220	4.8	
- Raspberries	50	150	945	3.0	
- Blueberries	50	550	2,350	5.3	23.6
- Strawberries	110	220	6,500	21.3	5.7
- Other berryfruits		120	500	0.6	
Citrus	421	999	29,485	49.1	6.9
- Grapefruit	18	8	300	0.3	
- Lemons	59	178	5,627	9.6	3.2
- Limes	25	12	300	1.0	
- Mandarins	285	361	10,722	23.4	3.0
- Oranges	213	406	11,736	14.0	0.6
- Tangelos	31	34	800	0.8	0.1
Feijoa	200	238	500	1.7	0.2
Grapes - table		43			0.2
Hops	18	395	765		
Kiwiberries	24	38	570	0.2	3.0
Nashi	26	30	760	1.5	0.1
Nuts		1,344			8.1
- Cashews					0.3
- Chestnuts	100	142	350		0.1
- Macadamias		195			
- Pistachios					0.5
- Hazelnuts		433			
- Walnuts		574			
- Other nuts					7.2
Olives	441	1,657	4,000		
Passionfruit	40	17	110	1.3	0.6
Pears		380	5,700		10.7
Persimmon	50	154	2,250	4.0*	8.2
Summerfruit	349	1,771	16,144	57.9	36.2
- Apricots	54	332	3,593	9.1	7.4
- Cherries	88	619	3,047	14.3	28.0
- Nectarines	56	307	3,669	14.4	
- Peaches	73	296	3,083	11.8	0.5
- Plums	78	217	2,752	8.3	0.3
Tamarillos	45	106	420	2.2	0.3
Other fruits		250			0.8
Total fresh fruits (excl. Kiwifruit, Grape Wine, Apples)					197.6

Sources: *Sector estimates, *Sector estimates of first point of sale values, *Statistics New Zealand Overseas Trade Statistics. Blank entries indicate either that the information is not available or items are valued at less than \$50,000.

- Fresh fruit exports in 2014 increased by \$132.3m over 2013 with most of the increase in two crops: apple exports increased by \$61.2m (13%); avocado exports increased by \$59.3m to \$93m but was \$4m less than 2012.
- Summerfruit exports increased in value by \$7.7m (27%) over 2013 to a record \$36.2m, 77% of which was cherries whose export value increased by 32% over 2013 to \$28.0m and \$4.2m above the previous record of \$23.8m in 2011. The value of cherries exported a decade ago (2004) was \$13.5m.

Processed fruits

Sales value (\$m)

	Domestic ^a 2013/14	Export ^b (fob) 2014
Apple juice	45.9	24.6
Avocado oil	0.2	2.8
Blackcurrant concentrate		13.6
Other fruit juices	92.1	12.8
Other fermented beverages		18.6
Dried fruits		6.0
Frozen fruits		14.7
- Blackcurrants		2.3
- Blueberries	2.8	3.5
- Boysenberries	2.7	3.5
- Kiwifruit		3.2
- Raspberries		0.2
- Other		2.0
Fruit preparations		27.6
- Apples		7.0
- Blackcurrants		0.5
- Kiwifruit		2.7
- Fruits mixture preps.		13.0
- Pears		0.2
- Other		4.2
Hops	3.1	9.5
Jams, jellies and purees		25.8
Nuts		6.2
Olive oil	2.3	0.4
Total processed fruits		162.6

Fruits used for processing is produced on the orchard areas described in the fresh fruit table. *Sector estimates of first point of sale values, *Statistics New Zealand Overseas Trade Statistics. Blank entries indicate either that the information is not available or items are valued at less than \$50,000.

- \$11.5m of frozen berryfruit exports and \$3.2m frozen kiwifruit gave a record frozen fruit exports value of \$14.7m (+14%).
- Exports of jams fell by \$7.9m (-23%) to \$25.8m. Jam exports peaked in export value at \$48.4m in 2010. In 2010 total fruit exports from New Zealand, fresh, frozen, juiced, and jams, but excluding grape wine, were \$1.6 billion fob. In 2014 the comparable figure was \$1.8 billion, an increase of 14%.

Extended shipping for avocado

Shipping under controlled atmospheres – with low oxygen and high carbon dioxide – is being investigated as a method of extending the market for avocados. By determining the environment that best meets the fruit being shipped, new protocols will extend storage life and allow access to distant markets. The approach has been trialled successfully for shipments to both Asia and North America.



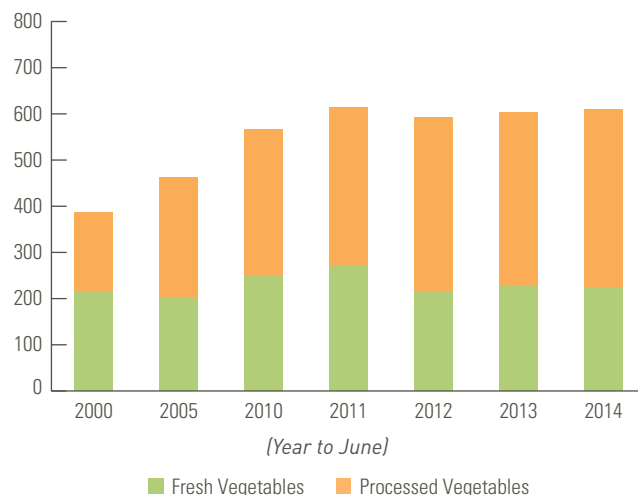
Fresh and processed vegetables

Sales value (\$ million, fob)

	Growers ^a (no.)	Planted ^c area (ha)	Crop volume ^c (tonnes)	Domestic ^c 2014	Exports 2014 ^a	
					Fresh	Processed ^b
Asparagus	62	470 ^c	1,800	12.0	2.3	0.0
Beans	35	1,500 ^c	20,000			44.6
- fresh	5	300	3,000			
- processed	30	1,200	17,000	18.0		
Beetroot	4	1,500 ^d	16,000			
Brassicas	420	2,800 ^c	92,000	80.3	2.2	
- Broccoli	120	1,500 ^c	19,000			
- Cabbage	100	500 ^c	35,000			
- Cauliflower	100	800 ^c	38,000			
Capsicums	38	65 ^c	15,000	29.3	32.0	
Carrots	45	2,600 ^c	164,000	30.0	7.7	2.2
- Fresh	20		78,000			
- Processed	25		86,000			
Cucumbers	30	50 ^c	1,770			
Garlic	6	200 ^c	900	6.5	0.4	
Kumara	47	1,300 ^c	17,500	31.0		
Lettuce	100	1,350				
- Outdoor	40	1,300 ^c		41.8	1.7	
- Greenhouse	60	50 ^c				
Melons	22	273 ^d	4800		0.9	
Mushrooms	7	25 ^c	8,500	41.1	2.0	
Onions	105	5,279 ^c	181,000	25.0	97.1	
Peas	250	6,800 ^d	66,000	50.0		79.8
Potatoes	174	10,329 ^d	511,875	400.0	16.9	105.4
Pumpkin	98	1,048 ^d	38,000			
Shallots	3	30 ^c	1,200		0.7	
Silverbeet/Spinach	46	200 ^c	3,500	6.0		
Squash	34	5,783 ^c	72,235	2.9	45.9	
Sweetcorn	150	4,664 ^d	82,000	20.0	0.1	38.3
- Fresh	50		5,000			
- Processed	100		77,000			
Tomatoes	160	789	92,400			
- Greenhouse	20	669	50,000	5.0		
- Outdoor	140	120 ^c	42,400	95.0	8.9	3.0
Truffles ^d	25	70	0.2	0.5		
Mixed vegetables	Made from combinations of the above crops					38.8
Dried vegetables	Excluding peas, beans, corn					6.8
Vegetable preps						26.8
Vegetable juices						32.1
- Carrot juice ^d				0.5		30.0
- Other veg. juices						2.1
Other Vegetables ^a		4,220			2.2	11.1
Total	1,700^d	50,163			221.0	388.9

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. ^eMany growers produce multiple crops. ^fStatNZ Production Census crop areas as at 30 June 2012. ^gStatistics New Zealand from export entries.

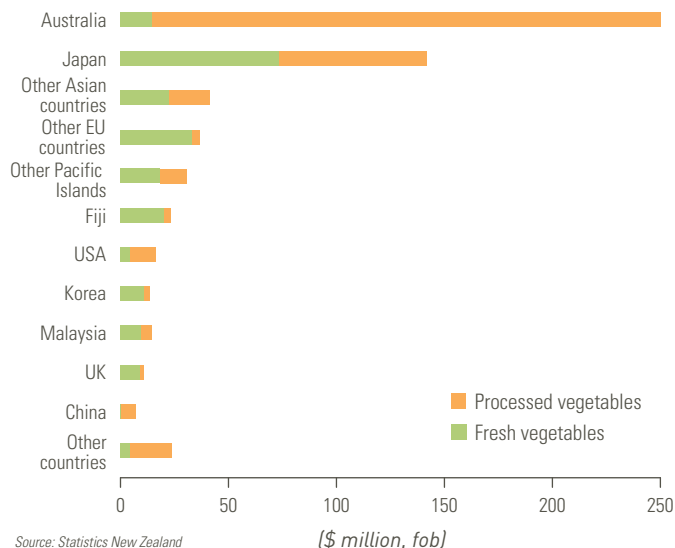
Vegetable exports 2000 to 2014 (\$ million, fob)



Source: Statistics New Zealand

- Total vegetable exports at \$609.9m were 1% above 2013, but less than the record vegetable export value of \$614.0m in 2011.
- Of fresh and processed vegetables that New Zealand exported to 75 countries, 64.3% was to two countries - 41.0% to Australia: \$250.0m (fresh \$14.6m, frozen \$150.0m [potatoes \$65.5m, mixed veg. \$30.5m, peas \$29.0m], vegetable preparations \$71.9m); and 23.3% to Japan: \$141.9m (fresh \$73.4m [squash \$34.0m, capsicums \$21.2m], frozen \$25.2m, vegetable juice \$29.1m).
- Fresh vegetable export value of \$221.0m in 2014 was 4% below the average value for the previous 10 years and \$49m below the fresh vegetable record export value of \$270.2m in 2011.
- 2014 fresh vegetable export crops with values greater than \$5m were onions \$97.1m (2013 \$90.8m), squash \$45.9m (\$50.7m), capsicums \$32.0m (\$38.0m), potatoes \$16.9m (\$15.8m), tomatoes \$8.9m (\$8.8m), and carrots \$7.7m (\$7.5m).
- Frozen potato exports increased \$9.7m (12.6%) over 2013 to \$86.3m and almost identical value to 2012.
- Vegetable juice exports have increased three-fold in the past decade from \$6m in 2004/5 to \$31.8m in 2014. This category is dominated by carrot juice (est. 95%) of which most is exported to Japan.
- New Zealand imported horticultural produce from 110 countries. \$196.2m (cif) was vegetables in many forms with 74.7% in five categories: \$49.1m frozen vegetables from 36 countries of which \$27.9m was frozen potatoes (Australia \$14.5m), \$30.6m vegetable preparations from 58 countries (China and Spain each \$2.9m, Greece \$2.6m, Australia \$2.0m, Peru \$1.8m), \$29.2m as dried vegetables from 56 countries: dried beans \$13.4m (USA \$9.9m), \$26.7m preserved tomatoes from 23 countries (Italy \$12.9m, USA \$7.2m), \$10.9m melons from 7 countries (Australia \$8.4m, Philippines \$1.9m).

Destinations of New Zealand vegetable exports 2014 (\$ million, fob)



Processed peas for a growing market



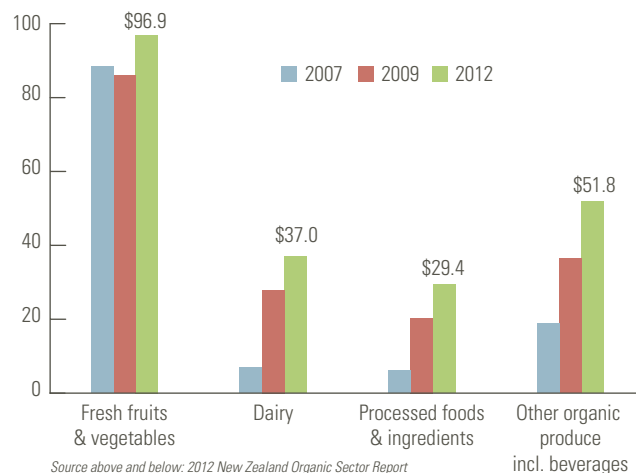
The high yielding, double-podded 'Sonata' pea currently accounts for approximately one third of the seed supplied to growers by New Zealand's largest vegetable processor, Heinz Wattie's. The cultivar is particularly suited to the Canterbury climate, and has good yield, colour and flavour.

Since the 1980s, new cultivars from the New Zealand vining pea breeding programme have increased average yield from 5 tonnes per hectare to more than 8.5 tonnes currently. The programme focuses on cultivars tailored to New Zealand growing conditions and resistance to pests and diseases.

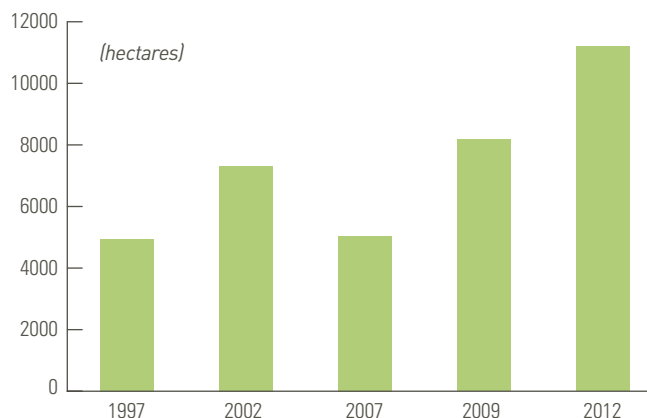
Organic production

- New Zealand land area under organic certification in horticulture increased by 37% in the three years 2009 (8,175 ha) to 2012 (11,188 ha), in part reflecting increased organic grape production with over 100 vineyards growing grapes organically (7.6% of all grapevines, 2012). Total land area in New Zealand under organic certification in 2012 was 106,753 ha.
- In 2012 there were 720 organic operations in horticulture.
- Exports of organically certified fresh fruit and vegetables in 2012 were calculated to be \$97 million and 45% of total organic sector produce exports.
- Domestic market sales of organic fresh fruit and vegetables was calculated to have increased from \$2.3 million in 2009 to \$4.0 million in 2012, a 74% increase in three years and accounting for 5% of all organic produce sold at supermarkets and specifically organic sector stores. Additional organic produce is sold direct-to-consumers and at farmers' markets of which there are approximately 45 across New Zealand.

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



New Zealand land area under certification, horticulture and viticulture



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

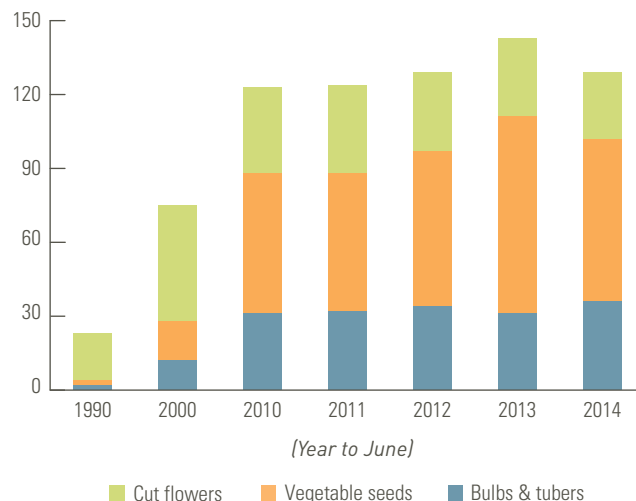
Selected HS Items	1990	2000	2010	2013	2014
Cut flowers					
- Chrysanthemums			0.2	0.5	0.2
- Hydrangeas			2.7	3.0	2.7
- Lilium		1.9	0.2	0.1	0.2
- Nerines		0.6	0.2	0.1	0.1
- Orchids	8.2	22.4	20.8	19.6	15.3
- Paeonies		0.5	1.7	1.6	1.8
- Pittosporum			1.2	1.6	1.3
- Proteaceae	0.5	1.4	0.9	0.6	0.5
- Sandersonia	0.2	3.1	0.2	0.1	0.3
- Zantedeschia (Calla lily)	1.9	7.7	3.7	2.1	1.6
- Other Foliage	0.7	0.6	0.6	0.6	0.6
- Other cut flowers	7.8	8.5	2.7	2.5	2.0
Plants					
- Other live plants	2.5	5.6	6.6	6.2	6.2
Seeds					
- Flower seeds	<0.1	2.1	0.3	0.5	0.7
- Fruit seeds			1.9	1.6	1.5
- Cabbage seeds			5.0	5.4	4.6
- Carrot seeds			7.6	27.0	14.9
- Radish seeds			21.4	26.6	24.3
- Other veg. seeds	2.1	15.9	23.4	21.3	22.4
- Tree seeds		1.6	1.5	0.8	0.9
Bulbs, tubers, corms					
- Lilium			16.8	20.2	22.6
- Sandersonias			0.7	0.7	0.5
- Tulips			9.6	9.4	11.6
- Zantedeschia (Calla lily)		1.5	3.5	0.2	0.1
- Others	2.0	10.1	0.4	0.7	1.1
Sphagnum moss	11.0	15.3	6.1	4.6	4.5*
Total	36.9	98.8	139.9	157.5	142.5

The term "bulbs" is used to include bulbs, corms, tubers, tuberous roots, crowns & rhizomes. * Author's estimate.

Source: Statistics New Zealand.

- The total value of exports of cut flowers, seeds, plants, bulbs, corms and foliage of \$142.5m in 2014 was the second highest on record (2009 \$143.4m). The export value of this group in 2004 was \$115m.
- The export value of cut flowers and foliage in 2014 was \$26.6m and 18% (\$5.8m) below 2013. The record export value for this category was \$43.4m in 2007, dominated by orchids (\$15.3m in 2014, \$20.4m in 2007).

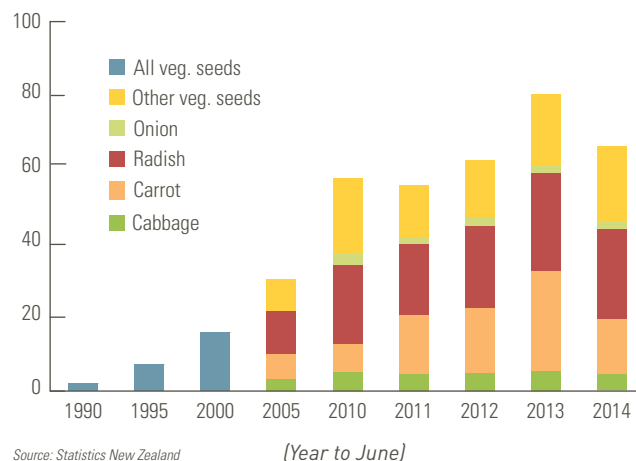
Exports of flowers, seeds and bulbs (\$ million, fob)



Source: Statistics New Zealand

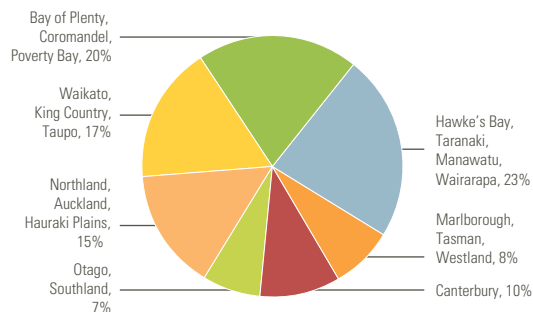
- 2014 export value of flower bulbs was \$36.0m, an increase of \$4.9m (16%) on 2013 and a record for this product group. In 2004, flower bulb exports totalled \$21.7m fob value.
- Vegetable seed exports of \$66.2m were exported to 48 countries in 2014 and had been on an increasing trend in export value although falling from \$80.2m in 2013. The dominant vegetable seeds were radish seed \$24.3m exported to 24 countries (\$26.6m 2013), and carrot seed \$14.9m to 15 countries (\$27.0m 2013), with all other vegetable seeds totalling \$27.0m (\$26.6m).

Vegetable seed exports (\$ million, fob)



Source: Statistics New Zealand

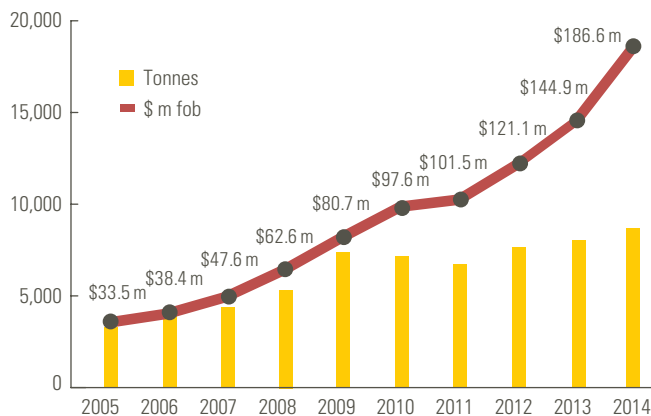
New Zealand honey production 2014 (17,823 tonnes)



Source:ASUREQuality Ltd

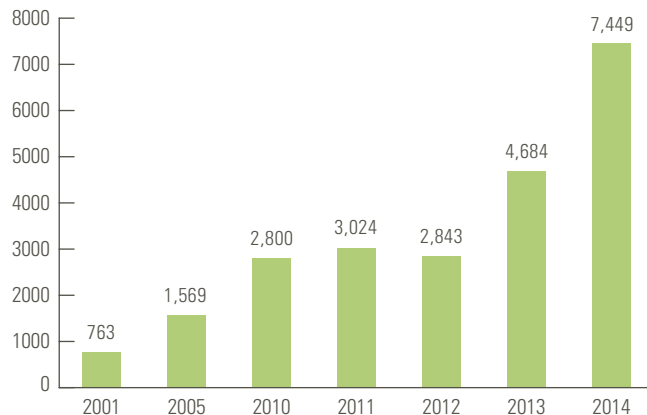
- Bees are crucial to New Zealand's primary sector, pollinating approximately one-third of our food sources and playing a significant role in determining crop yields.
- Honey production at 17,608 tonnes in 2014, was just 215 tonnes less than the 2013 record production and over 4,200 tonnes above the six-year average (2009 to 2014) of almost 13,400 tonnes.
- The value of New Zealand's honey exports further increased in value from \$144.9m in 2013 to \$186.6m in 2014 with the major export markets exceeding \$10m fob value being: UK \$39.3m (2012 \$31.5m), Australia \$26.4m (\$14.6m), Hong Kong also \$26.4m (\$19.8m), China \$21.5m (\$15.4m), Singapore \$14.9m (\$14.6m), Japan \$13.5m (\$11.0m), USA \$12.3m (\$10.6m). Natural honey was also exported to 47 other markets.
- As at June 2014 New Zealand's 4,814 registered beekeepers had 507,247 hives, an increase of 55,229 (12.2% on 2013). In 2004, New Zealand had 295,000 hives and produced 8,888 tonnes. Export of natural honey in 2004/5 was valued at \$33.5m fob.

New Zealand natural honey exports 2005 - 2014



Source: Statistics New Zealand

People in horticultural training, per year 2001 - 2014

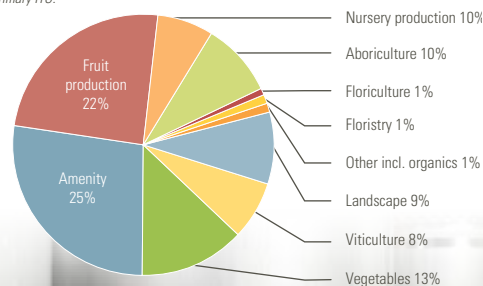


Source: Primary ITO

- A record number of trainees in horticulture with 7,449 in 2014 compared to 4,684 in 2013, a 59% (2,765) increase. The 2014 number is over five times the number being trained in 2004 (1,430) and close to 10 times the number in 2001 (763).
- Trainee numbers in nearly all categories increased with the largest being: Amenity (e.g. sports grounds) +592 (1,274 to 1,866), Fruit Production +527 (1,119 to 1,646), Nursery production +433 (311 to 744), Vegetables +342 (636 to 978), Arboriculture (trees/shrubs/vines) +333 (423 to 756).

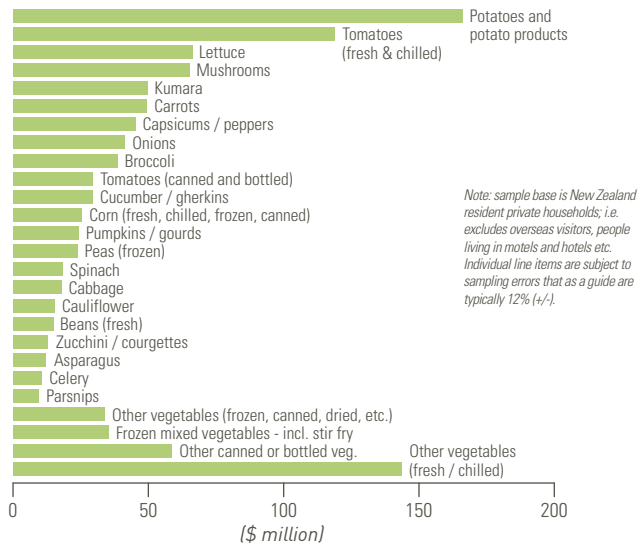
Trainees by category (year to December 2014)

Source: Primary ITO.



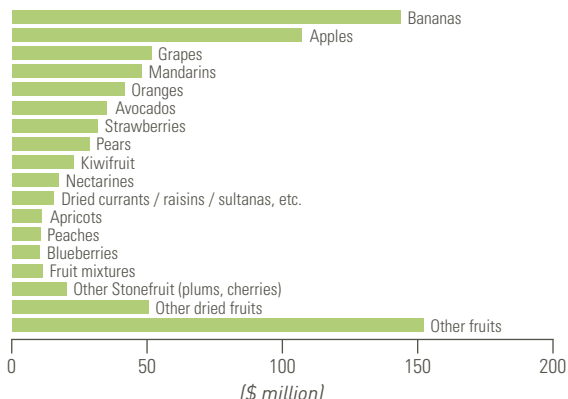
New Zealand consumer spending on vegetables (\$ million)

(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, 2014

	Crop area (ha)	On-farm (\$ million)	Off-farm (\$ million)	Total (\$ million)
Apples, pears & nashi	9,380	844	580	
Wine grapes	36,300	5,651	15,541	
Kiwifruit	11,020	3,141	2,159	
Summerfruit	2,070	166	114	
Avocados	3,660	329	181	
Citrus	1,550	124	68	
Berryfruit	3,045	244	167	
Nuts	1,350	108	30	
Olives	1,660	133	91	
Other subtropical fruits	700	56	23	
Hops	395	32	78	
Other fruits	850	68	28	
Total fruits	71,980	\$10,895	\$19,061	\$29,957
Potatoes	10,330	620	298	
Peas & Beans	8,300	498	240	
Onions	5,540	332	160	
Squash	5,780	376	181	
Sweetcorn	4,660	280	135	
Broccoli, cabbages & cauliflowers	3,640	218	105	
Carrots	2,600	156	75	
Asparagus	670	40	19	
Lettuce	1,300	78	43	
Other vegetables	7,000	420	173	
Total vegetables (outdoor)	49,820	\$3,018	\$1,429	\$4,447
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	123,255	\$15,639	\$20,913	\$36,552

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

Crop area figures are predominantly industry estimates of planted areas per crop for the year to June 2014 (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 similar to the census 2012 total.

Land values are based on independent land valuation advice, Viticulture Monitoring Report 2014 (NZ Winegrowers/MPI). 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 approximately \$36.5 billion inclusive of off-farm post harvest facilities for cleaning, sorting, packaging and processing produce from an estimated 123,500 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 79% of the total on-farm and off-farm investment in New Zealand horticulture.

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 ha 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 9,189 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)

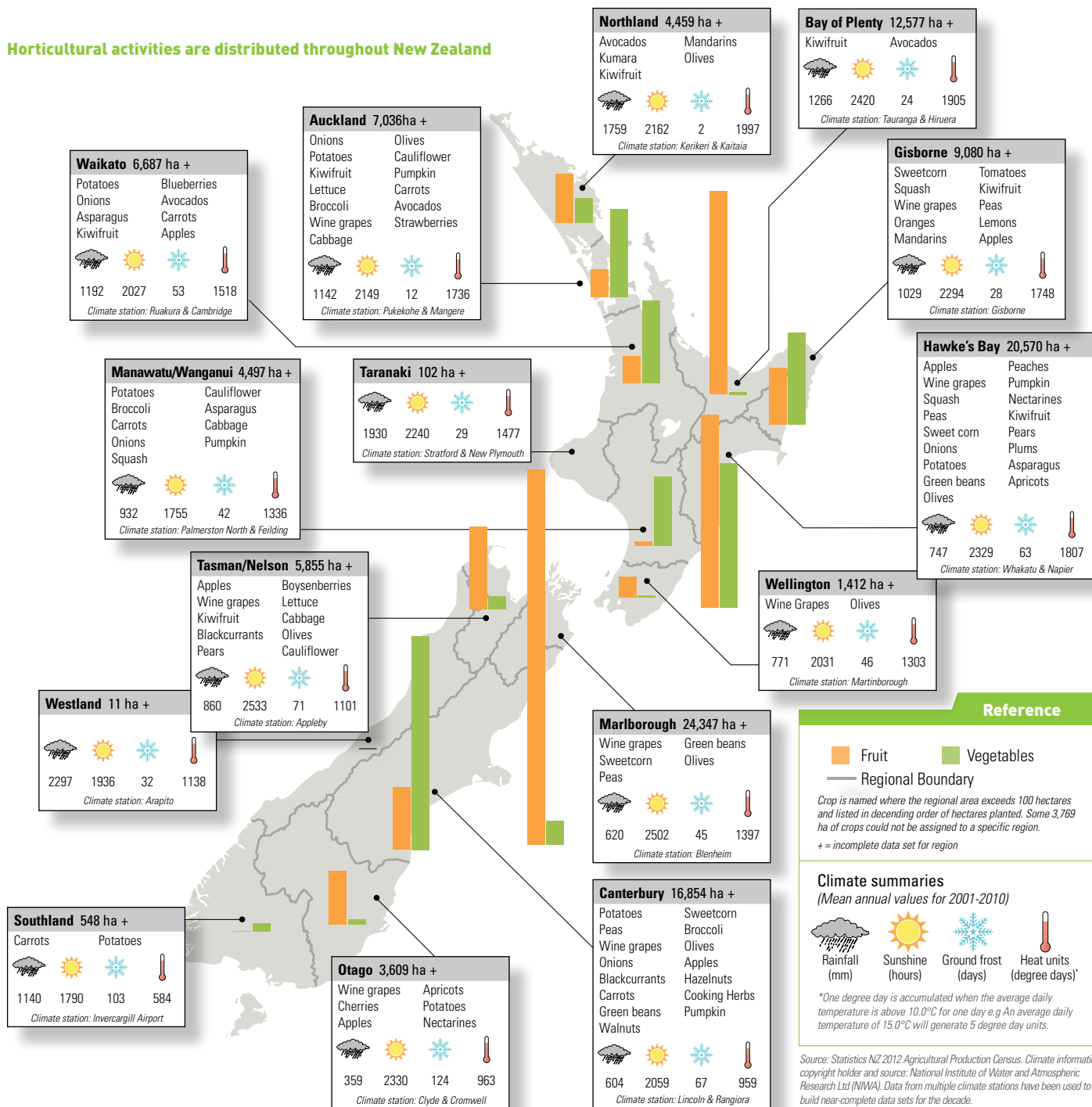
Distribution of indoor crops (m², 000s)

Regional Council	Asparagus	Broccoli	Peas & Beans	Carrots	Lettuce	Onions	Potatoes	Squash	Sweet corn	Other veg	Total veg
Year ended 30 June 2012											
Northland	C	28	6	2+	C	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	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	C	23	C	C	C	23+
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	0	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	0	C	510
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 m²)

Regional resources

Horticultural activities are distributed throughout New Zealand





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RESEARCH
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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 New Zealand Horticulture Trust has two principal sponsors, **Horticulture** and **TasmanCrop**. These two 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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