

# *FreshFacts*

NEW ZEALAND HORTICULTURE

2011



Plant & Food  
**RESEARCH**  
RANGAHAU AHUMĀRA KAI





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Reporting basis: unless stated otherwise, all statistics are for the year ending 30 June 2011 and expressed as \$NZ. Exports are given as free-on-board (fob) values. Imports are given as cost, insurance and freight included (cif). Historical values have not been adjusted for inflation.

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## New Zealand horticulture – Sustainable success

*New Zealand's horticultural industry has continued to grow its exports despite tough economic times worldwide. Horticulture accounts for \$1 in every \$13 (7.5%) of New Zealand's exports, with an annual value of close to \$3.5 billion.*

*Wine remains our largest horticultural export, earning over \$1 billion each year. While the number of wineries has steadily increased over the past decade due mainly to the popularity of New Zealand Sauvignon Blanc, future success is based more broadly around new flavours that appeal to consumers in new and existing markets, as well as applying our success to develop new varieties of wines with unique characteristics.*

*Increasing diversification of varieties has proved a successful strategy for many of our horticultural industries. The wide variety of apples New Zealand now offers the global consumer has allowed our pipfruit industry to maintain a premium in the marketplace, and other fruit and vegetables are also following this trend. Added to this, our science allows us to maintain access to our markets despite increasingly stringent phytosanitary and sustainability requirements.*

*The success of New Zealand's horticultural industry depends on the skills and dedication of people throughout the value chain. By applying science and technology to our experience with our key crops, the industry will continue to compete and win on the global stage. Plant & Food Research is pleased to play a role supporting the industry with research that supports this dynamic and important sector.*

Peter Landon-Lane  
CEO, Plant & Food Research

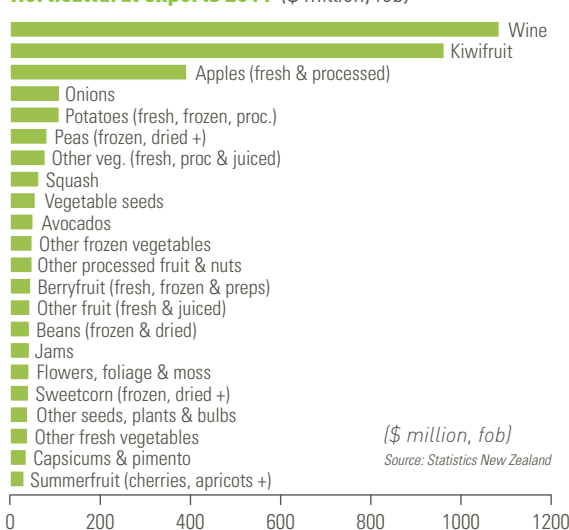
## Horticultural exports (\$ million, fob)

Year ended June	1975 <sup>a</sup>	1985 <sup>a</sup>	1995 <sup>b</sup>	2005 <sup>b</sup>	2010 <sup>b</sup>	2011 <sup>b</sup>
<b>Fresh fruit</b>						
- Apples	19.3	108.2	343.6	387.0	324.6	363.3
- Kiwifruit	2.9	171.9	320.8	720.2	995.7	962.6
- Avocados	n/a	n/a	n/a	29.0	59.9	51.3
- Other fresh fruit	0.8	28.4	57.6	51.5	74.7	79.7
<b>Total fresh fruit</b>	<b>23.0</b>	<b>308.5</b>	<b>722.0</b>	<b>1187.7</b>	<b>1454.9</b>	<b>1456.9</b>
<b>Processed fruit</b>						
- Wine	0.1	3.0	42.0	432.7	1036.8	1085.4
- Juices - fruit	0.1	9.6	30.5	34.5	31.7	40.0
- Jams	n/a	n/a	n/a	18.1	48.4	42.7
- Other processed fruit	1.7	40.3	44.3	49.2	75.1	79.4
<b>Total processed fruit</b>	<b>1.9</b>	<b>52.9</b>	<b>116.8</b>	<b>534.5</b>	<b>1192.0</b>	<b>1247.5</b>
<b>Fresh vegetables</b>						
- Onions	1.2	17.7	92.6	61.6	113.4	110.2
- Squash		14.6	57.7	72.1	53.2	64.0
- Other fresh vegetables	1.9	11.6	49.8	65.3	81.1	96.0
<b>Total fresh vegetables</b>	<b>3.1</b>	<b>43.9</b>	<b>200.1</b>	<b>199.0</b>	<b>247.7</b>	<b>270.2</b>
<b>Processed vegetables</b>						
- Peas (frozen)	1.5	22.0	34.3	36.6	41.0	50.9
- Potatoes (frozen)			14.1	54.3	77.2	81.0
- Sweetcorn (frozen/dried)	0.8	9.5	30.6	42.7	32.9	23.8
- Mixed vegetables (frozen)		4.6	23.9	36.0	36.1	40.7
- Dried vegetables				25.5	40.3	38.5
- Vegetable preparations				39.4	52.3	54.3
- Other processed vegetables	2.4	20.9	75.6	29.8	41.3	54.6
<b>Total processed vegetables</b>	<b>4.7</b>	<b>57.0</b>	<b>178.5</b>	<b>264.3</b>	<b>321.1</b>	<b>343.8</b>
<b>Other horticultural exports</b>						
Flowers & foliage	0.2	10.5	49.9	38.5	35.1	35.6
Vegetable seeds	n/a	n/a	n/a	30.2	57.4	55.9
Seeds, plants & bulbs etc	0.6	2.1	17.4	42.1	41.3	40.8
Sphagnum moss		6.3	17.3	8.8	6.1	6.1
<b>Total exports in current \$</b>	<b>33.5</b>	<b>481.2</b>	<b>1,302.0</b>	<b>2,305.1</b>	<b>3,355.6</b>	<b>3,456.8</b>
<b>Horticultural exports</b>						
as % of NZ merchandise exports.	2.0	4.4	7.0	7.5	8.3	7.5

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

- Total horticulture merchandise exports in 2011 increased in fob value by 3.0% (\$ 101.2m) over 2010 and horticulture is now 7.5% of New Zealand's total merchandise exports.
- Total New Zealand fresh fruit export value was similar to 2010 with an increase in apple export earnings offsetting decreases in kiwifruit and avocado fob values.
- Export figures (*StatsNZ, year to June 2011*) show a volume increase of 7.4% over 2010 but an fob receipts increase of 4.7%, reflecting one-third of New Zealand wine is now exported in bulk and labelled as New Zealand wine in destination markets.
- Fresh vegetables exports increased 9.1% over 2010 with the \$22.5m increase in fob value coming from squash \$10.8m, tomatoes \$5.3m, capsicums \$2.2m and carrots \$1.8m which together with gains in most other fresh vegetable varieties more than offset the \$3.2m (2.8%) decrease in the value of onion exports.
- Frozen vegetable exports increased \$19.6m (10.1%) to \$214.3m. The largest gain was \$9.9m for frozen peas accounting for 51% of the total increase in frozen vegetables.

## Horticultural exports 2011 (\$ million, fob)

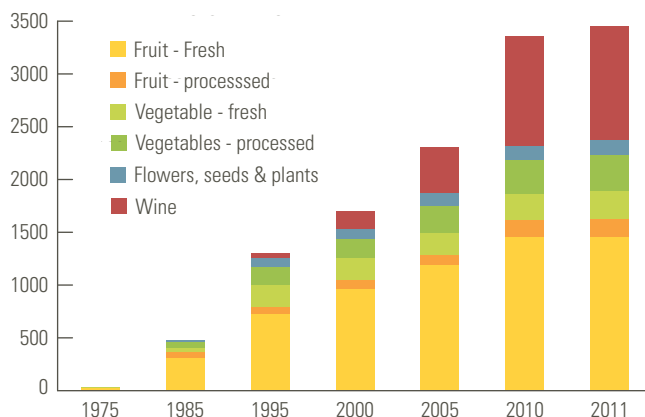


- Exports of vegetable seeds remain significant at \$55.9m although 2.7% (\$1.5m) less than 2010. The largest quantity of vegetable seed varieties exported are radish \$19.1m and carrot \$16.0m.

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

- Natural honey exports at \$101.5m exceeding \$100 million for the first time and a 4.0% increase in fob value over 2010. Bees and their pollination are an integral part of New Zealand's horticulture.
- Horticultural machinery and components, primarily for cleaning, sorting and grading fresh and dried fruit and vegetables - to the value of \$55.3 million were exported in 2011. In 2004 exports in this category were valued at \$24.7m fob. Income to New Zealand companies in the form of royalties and licence agreements are in addition to component exports.

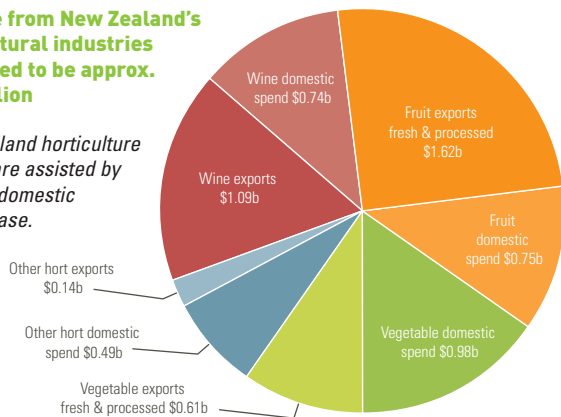
## Horticultural exports - Years to June (\$ million, fob)



Source: Statistics New Zealand

## Produce from New Zealand's horticultural industries calculated to be approx. \$6.4 billion

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



Source: Statistics New Zealand, plus domestic market figures derived from the triennial Household Economic Survey (HES) 2010 adjusted to calculated number of households at 30 June 2011

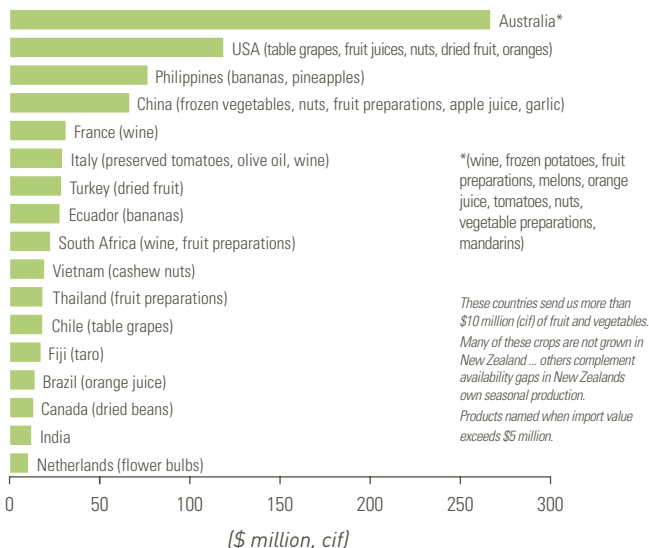
## Top 10 export destinations (\$ million, fob)

	Exports 2000	Exports 2010	Exports 2011	
Australia	159	701	756	Wine, avocados, potatoes-frozen, jams, kiwifruit, peas-frozen, mixed frozen veg, veg preps-beans, berryfruit, capsicums, fermented beverages, honey, tomatoes, sweetcorn-frozen, apple juice, beans-frozen, apple preparations, apricots
Japan	395	484	508	Kiwifruit, squash, capsicums, onions, veg-juice, orchids, sweetcorn-frozen, honey, wine, peasfrozen, lillium bulbs, potatoes-frozen
UK	246	365	394	Wine, apples, onions, honey
USA	188	353	351	Wine, apples, kiwifruit, honey, orchids, apple juice
EU (centralised distribution)	279	299	252	Kiwifruit, apples
Taiwan	53	108	116	Kiwifruit, apples, cherries
Netherlands	29	104	116	Wine, onions, seeds-radish, seeds-other veg
China	11	100	113	Kiwifruit, wine
Spain	57	89	97	Kiwifruit, apples

Entries only included if value to destination exceeds NZ \$5 million (Source: Statistics New Zealand)

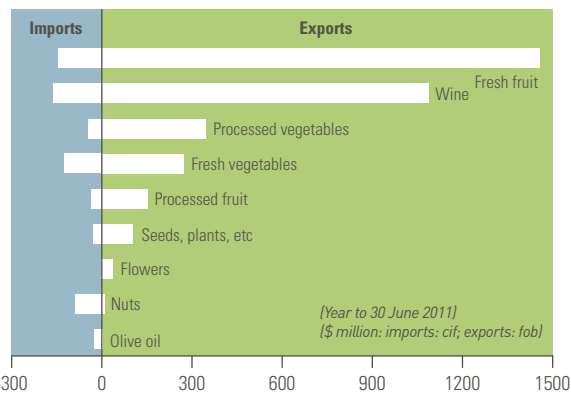


## The origin of fruit and vegetable imports, 2011 (\$ million, cif)



Source: Statistics New Zealand; Overseas Trade statistics for year ended June 2011.

## Comparisons of imports and exports 2011 (\$ million)



Source: Statistics New Zealand; Overseas Trade statistics

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

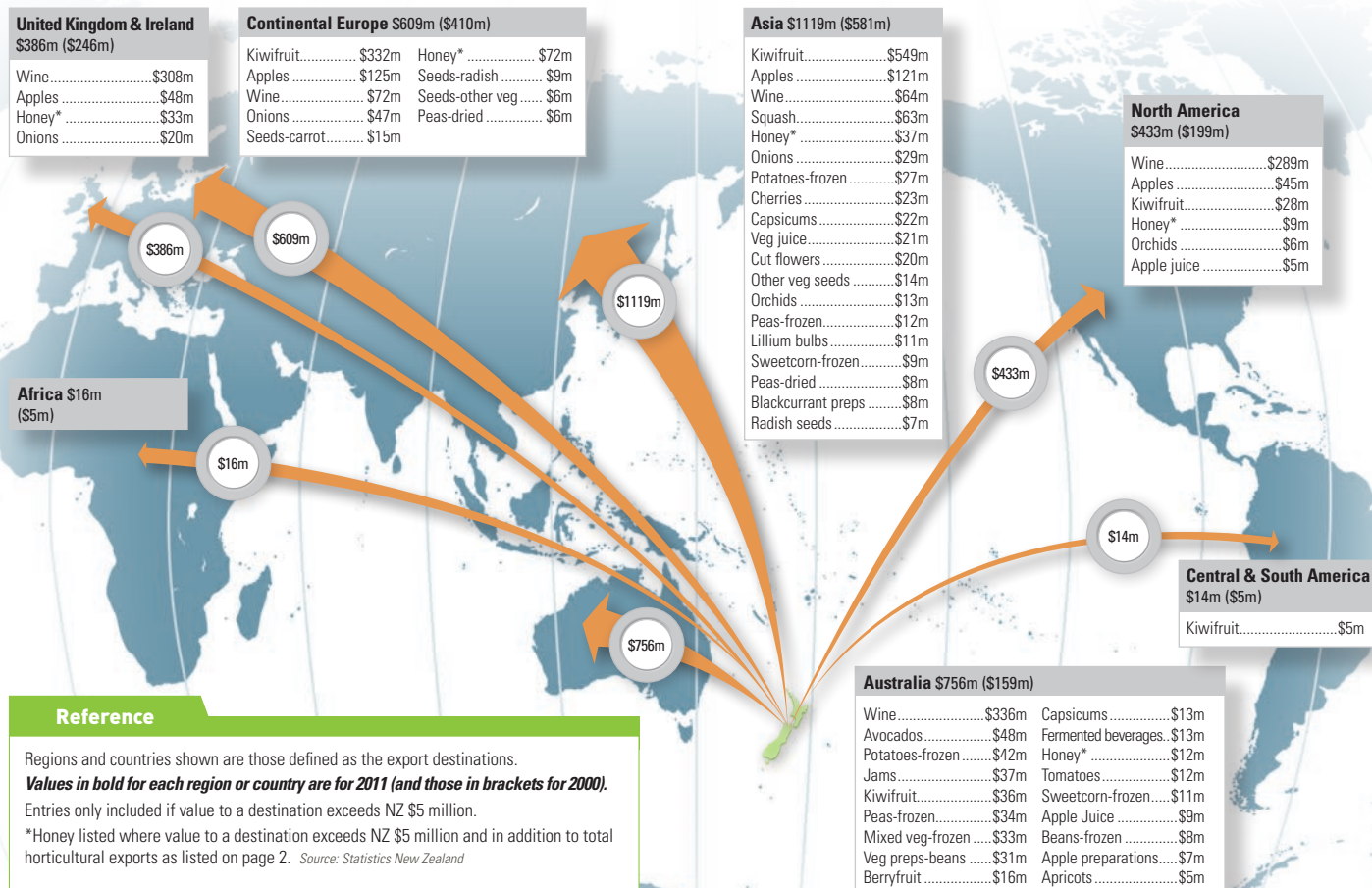
### Export destinations for New Zealand horticultural products – trends since 2000 (\$ million, fob)

- Fruit, vegetables and flowers were exported to 127 countries in 2011, ten more than in 2010. In 2000 New Zealand horticultural produce was exported to 114 countries.
- Exports to 25 countries exceeded \$10 million fob in 2011, up from 16 countries in 2000.

### Trends

- In 2011 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 \$2.7 billion (77%) of New Zealand's total horticultural exports in both 2010 and 2011.
- Exports to the above five markets have collectively increased in value by 90% since the year 2000, with the largest increases being horticultural exports to Australia (increasing from \$159m in 2000 to \$756m in 2011) and North America (from \$199m to \$433m).
- The diversity of horticultural products that formed the growth in exports to Australia is evident in the table below listing 18 products each exceeding \$5 million export value fob.

Source: Statistics New Zealand



## Grape and Wine production 2006 &amp; 2011

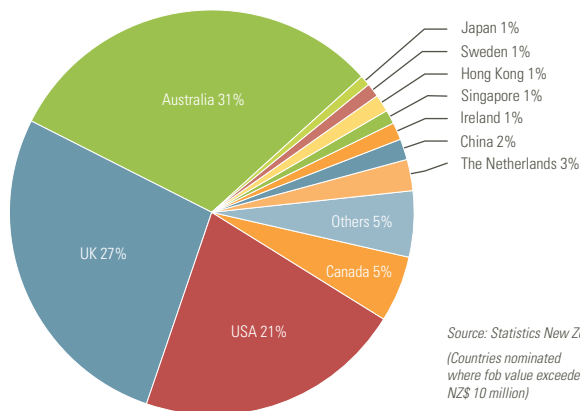
Variety	Production area (ha)		Production (tonnes)	
	2006	2011	2006	2011
Sauvignon Blanc	8,860	16,758	96,686	224,412
Chardonnay	3,779	3,823	26,944	25,580
Pinot Gris	762	1,725	3675	17,787
Reisling	853	993	6,745	6,118
Gewurtztraminer	284	313	1,532	1,836
Other white vinifera	465	379	5,856	2,326
Pinot Noir	4,063	4,803	22,062	31,156
Merlot	1420	1,386	11,206	9,092
Cabernet Sauvignon	531	519	2,659	1,667
Syrah	214	299	1,057	1,741
Other red vinifera	409	392	2,891	2,284
Muscat varieties	140	125	1,532	550
Other and unknown	836	2,085	2,155	3,451
<b>Total</b>	<b>22,616</b>	<b>33,600</b>	<b>185,000</b>	<b>328,000</b>

Region	2006	2011	2006	2011
Auckland/Northland	504	556	1,553	1,575
Waikato/Bay of Plenty	150	147	261	51
Gisborne	1,913	2,072	18,049	14,450
Hawke's Bay	4,346	4,993	33,287	35,533
Wairarapa	777	882	3,008	3,598
Marlborough	11,488	19,024	113,436	244,893
Nelson	695	861	5,623	7,854
Canterbury/Waipara	925	1,809	3,051	9,485
Otago	1253	1,540	4,612	7,104
Other and unknown	565	1,716	2,120	3,457
<b>Total</b>	<b>22,616</b>	<b>33,600</b>	<b>185,000</b>	<b>328,000</b>

Source: New Zealand Winegrowers Annual Report 2011.

## Wine exports by country 2011 (% by value)

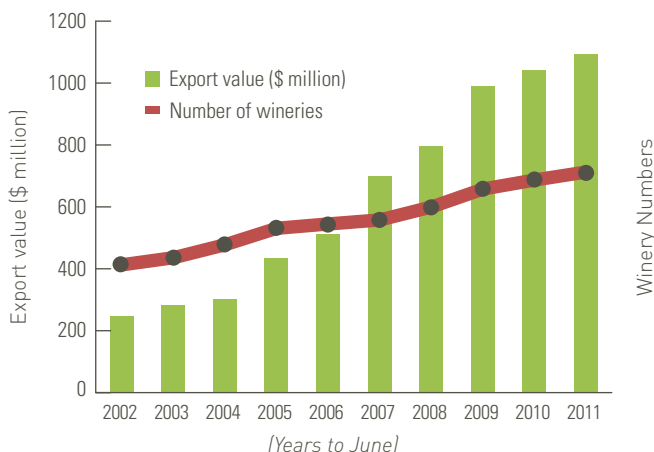


Source: Statistics New Zealand  
(Countries nominated where FOB value exceeded NZ\$ 10 million)

- Wine exports increased to \$1,085 million in 2011, compared to \$167 million in 2000, and up 4.2% on 2010. In 2011, New Zealand produced wine was exported to 104 countries compared to 94 countries in 2010.

- Grapes for wine making are grown in New Zealand from Northland to Otago, which is the equivalent of Bordeaux in France to southern Spain.
- The Marlborough region produced 74.7% of New Zealand's total wine production in 2011 and much of the Sauvignon Blanc harvest, the variety that was 86.4% of the total grape harvest that year. Hawkes Bay, with the largest red wine plantings of Merlot, Syrah and Cabernet Sauvignon was the next largest producing region with 10.8% of the 2011 harvest.
- Whilst the volume of wine increased 8% from 2010, export earnings increased only 4% reflecting one-third of New Zealand wine is now exported in bulk and bottled and labelled as New Zealand wine in destination markets.
- The number of wineries increased to 698 in 2011, which is close to double the year 2000 number of 358.

## Growth in wine exports and wineries 2002 to 2011



Sources: BNZ Statistical Annual, 2000 to 2002; New Zealand Grape & Wine Industry Statistical Annual 2003; New Zealand Winegrowers Statistical Annual, 2004 to 2011.

## Creating the perfect Sauvignon blanc

New tools for enhancing the individuality of New Zealand Sauvignon blanc are now available for commercial use, allowing winemakers to optimise the unique flavours in their wines.

The New Zealand Sauvignon blanc programme, a partnership between government, researchers and the wine industry, has delivered knowledge and tools for manipulating flavour at all stages of the wine production pathway – from grape growing to winemaking – to create premium wines with distinct flavours.

Initial research identified the compounds responsible for the distinctive aromas associated with New Zealand Sauvignon blanc and the geographic differences between regions. Subsequently, this knowledge has been used to isolate new yeasts to enhance citrus-like flavour notes. Also using the new knowledge, decision-support tools based on analytical chemistry have been developed to support the winemaking process. Further research is underway to build a better understanding of how the grape growing process influences chemical and sensory differences in wine.



## Kiwifruit industry statistics 2011

Season (ends 31 March)	2005	2006	2007	2008	2009	2010	2011
Crop volumes (million)							
Trays submitted*	85.8	87.8	90.0	102.0	109.4	107.0	105.9
Trays sold	79.7	82.3	80.1	92.4	99.9	96.5	98.1
<b>General Statistics</b>							
Yield (trays/ha)	7,847	7,655	7,514	8,371	8,866	8,546	8,255
Area planted <sup>d</sup> (ha)	10,934	11,464	11,967	12,186	12,337	12,525	12,825
Growers/suppliers <sup>2</sup> (no)	2,760	2,748	2,754	2,727	2,710	2,711	2,706
Packhouses (no)	88	83	80	75	71	71	67
Coolstores (no)	89	85	87	83	92	77	83
Orchard Gate Return (\$)	34,738	28,687	32,566	28,169	35,655	39,142	41,830

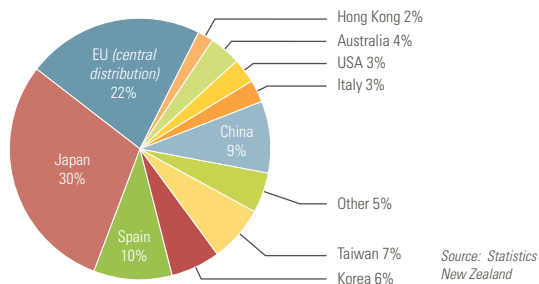
\*A tray weighs 3.6kg. <sup>d</sup> Producing hectares. <sup>2</sup> Refers to number of submitters

Production figures sourced from: Zespri International Ltd Annual Reports to 2010, Annual Review 2011.

- The ZESPRI® global crop sold comprised 106.8 million trays with 98.1 million trays from New Zealand and 8.7 million sourced abroad. The New Zealand sourced crop included 69.9 million trays of ZESPRI® Green, 21.2 million trays of ZESPRI® Gold, 3.3 million trays of ZESPRI® Green Organic and 3.8 million trays of other ZESPRI® kiwifruit (1.3m trays in 2010).
- The average Orchard Gate Return was \$41,830 per production hectare (up 7% from 2010, which was up 7% on 2009). By variety, the orchard gates returns per ha. for 2010/2011 were \$32,234 for ZESPRI® Green, \$37,541 for ZESPRI® Green Organic (down 4.7%) and \$83,785 for ZESPRI® Gold.
- Overall yield of kiwifruit was 8,255 tray equivalents (TE) per ha (down 3.4% from 2010 and down 6.9% from 2009), ZESPRI® Green averaging 7,330 TE per ha and ZESPRI® Gold 9,203 TE per ha. A bacterial canker disease affecting kiwifruit (known in New Zealand as 'Psa') was discovered in November 2010 and whilst there are no known impacts on animal or human health, it does impact vine health and will reduce the yield of some kiwifruit orchards.
- Since year 2000 trays submitted has doubled but the number of packhouses has reduced by 43% and coolstore numbers by 22%, reflecting larger and more specialised facilities in the supply chain.
- New Zealand produced kiwifruit exports were valued at \$962 million in 2011, down 3% from 2010 (for the years ending 30 June) and exported to 59 countries with 22 countries each importing more than \$1 million fob value.
- Japan was the largest export market for New Zealand kiwifruit (\$287.4m fob by value) followed by the EU central distribution (\$208.9m) then Spain (\$92.1m) and China (\$83.8m – a four-fold increase in three years from \$20 million in 2008).

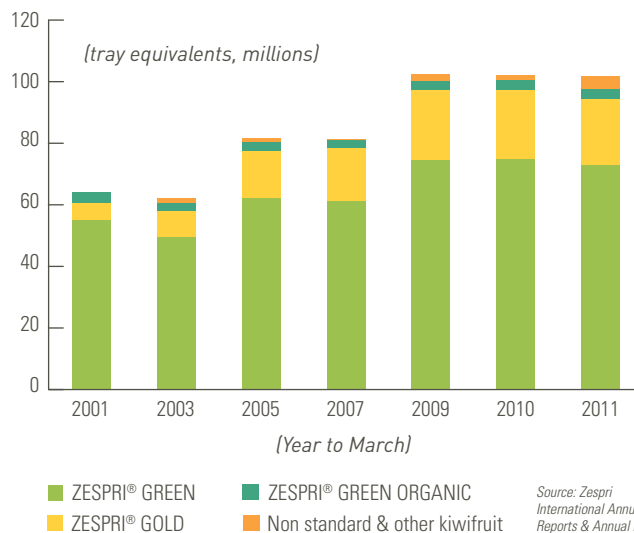
(Export data source: Statistics New Zealand - Year to June 2011)

## New Zealand kiwifruit export markets (year to June 2011)



Source: Statistics New Zealand

## Zespri® production profile (TEs) 2001 - 2011



Source: Zespri International Annual Reports & Annual Reviews

## Measuring the kiwifruit water footprint



A calculation of the water footprint of New Zealand green kiwifruit showed that less than 5% of water used during production is from irrigation, with the rest from natural sources such as rainwater.

Water availability is becoming a major international issue in all forms of agriculture. Consumers and retailers are becoming increasingly concerned about the water used in the production of their food. Calculation of water footprints, which provide a tangible measure of water used, are becoming necessary in demonstrating the environmental sustainability of food products, and also in providing a mechanism for producers to identify areas of potential inefficiency.

A calculation of the water footprint of ZESPRI® Green Kiwifruit showed that less than 5% of water used in the production life cycle of a single kiwifruit is from irrigation. Around 85% of the water lost as transpiration to the atmosphere was green water, that is rainwater and moisture retained in the ground. The full hydrological analysis also showed that as rainfall exceeded transpiration, groundwater resources under kiwifruit orchards are recharged by rainfall resulting in minimal impact on New Zealand's water resources from kiwifruit growing.

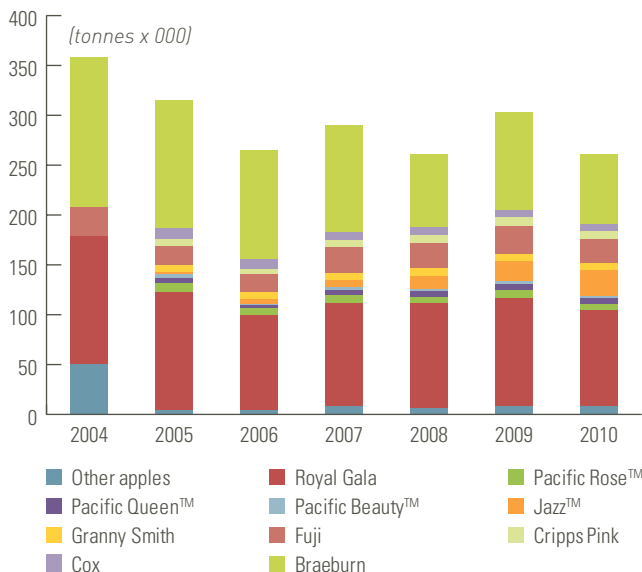
## Apple statistics

Year ending 31 Dec	2005	2006	2007	2008	2009	2010	2011
Crop volumes ('000 tonnes)							
National export production	315	265	290	261	303	260	
Growing method: IFP	95%	94%	94%	94%	92%	94%	
Certified organic	5%	6%	6%	6%	8%	6%	
General statistics							
National IFP \$/TCE, FAS	\$12.88	\$20.02	\$19.06	\$24.44	\$20.52	\$22.22	
Area planted (ha)	10,764	8,996	8,766	8,538	8,484	8,630	8,470
Export growers (no.)	920	680	520	509	454	431	406
Export Packhouses (no.)	85	73	68	70	65	62	
No. of exporters	96	90	93	95	95	99	

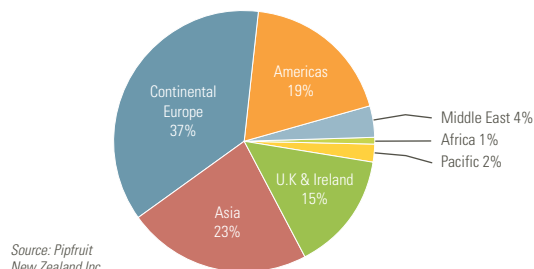
Timing: much of the production from the 2011 NZ apple crop was exported after 30 June 2011, the reporting period of this edition. IFP: Integrated Fruit Production sustainability; TCE: tray equivalents 18 kg sale weight. FAS: Free Alongside Ship (the value of the product at ship side). \* Estimate only. Source: Pipfruit New Zealand

- Important to the improved position for New Zealand apples has been the diversification of varieties since 2004 – see column chart. In 2004, Braeburn variety was 42% of the national export crop and has rapidly declined to 27% in 2010, being displaced by new varieties such as Jazz™ and the Pacific series.
- For 2010, the Pacific series achieved the highest returns of IFP apple varieties with Pacific Queen™ achieving an average weighted return of \$33.47 TCE compared with an average of \$22.22 TCE for all apple varieties grown under IFP methods. The average return for organic method production was \$27.35 per TCE.
- Following low returns in the 2004 – 2005 period, and the consequential reduction in hectares and the number of growers and the number of apple exporting packhouses and other resources, apple sector returns have improved and the planted area has stabilised with new plantings matching tree removals.
- Total number of exporters in 2010 was 99 of which 19 exported 87% of the crop.

## Apple export production by variety: 2004 - 2010

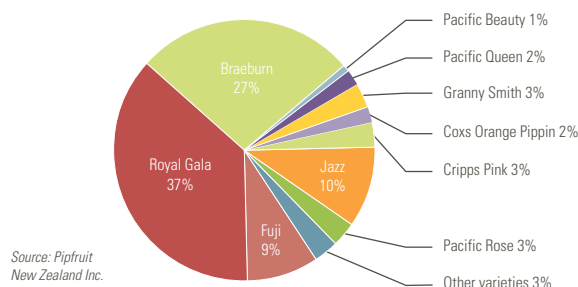


## Apple export destinations by region (Weight basis, 2010)



Source: Pipfruit New Zealand Inc.

## Apple exports by variety (Weight basis, 2010)



Source: Pipfruit New Zealand Inc.

The following information is from StatsNZ data for year to June 2011:

- In 2011, New Zealand apples were exported to 74 countries to a total value of \$363 million in 2011, which was an 11.9% increase on 2010 but significantly less than 2004 exports of \$485m.
- In addition to fresh apple exports of \$363m, in 2011 apple juice exports were worth \$19.6 million and apple preparations a further \$9.2 million.

For more information contact [www.pipfruitnz.co.nz](http://www.pipfruitnz.co.nz)

## 100% Pure Apples from New Zealand

All New Zealand apples destined for the European market, and 65% of the total harvest, are now produced under the AppleFutures programme, delivered with ultra low chemical residues.

Introduced in 2007, AppleFutures is an Integrated Pest Management (IPM) programme designed to keep pest and disease levels low with average chemical residues below 10% of EU regulatory tolerances. The programme incorporates a range of different tools, used in different combinations depending on the growing environment, to predict disease risk, monitor pests, maintain beneficial organism levels and target spraying when required.

Subsequently, Pipfruit New Zealand have introduced a new marketing campaign, "100% Pure Apples from New Zealand", to demonstrate to consumers the benefits of the programme.

The AppleFutures programme was developed with the support of New Zealand Trade & Enterprise and three regional economic development agencies – Hawkes Bay Incorporated, the Nelson Regional Development Agency and Otago Forward.





## Other fresh fruit

Sales value (\$m)

	Growers <sup>a,b</sup> (no.)	Planted area <sup>a,b</sup> (ha)	Crop volume <sup>b</sup> (tonnes)	Sales value (\$m)	
				Domestic <sup>b</sup> 2010/11	Export <sup>c</sup> (fob) 2011
Avocados	1,600	5,224	16,700	21.8	51.3
Berryfruit	240	2,607	21,858	58.9	22.7
- Blackcurrants	52	1450	8,000	3.6	
- Boysenberries	21	195	3,100	4.8	
- Raspberries	50	150	945	3.0	
- Blueberries	95	522	2,813	25.6	18.2
- Strawberries	110	170	6,500	21.3	4.5
- Other brambles		120	500	0.6	
Citrus	421	999	33,135	48.9	7.4
- Grapefruit	18	8	300	0.3	
- Lemons	59	178	6,500	5.9	3.2
- Limes	25	12	300	1.0	
- Mandarins	285	361	13,885	26.0	3.2
- Oranges	213	406	11,350	14.9	0.9
- Tangelos	31	34	800	0.8	0.1
Feijoa	200	251	500	1.7	0.2
Grapes - table		37			0.4
Hops	18	370	573		
Kiwiberries		27	163	0.2	1.5
Nashi	25	30	1,000	1.4	
Nuts		1484			2.2
- Cashew					1.7
- Chestnuts	100	310	350		0.1
- Macadamias		242			0.1
- Walnuts		498			
- Hazelnuts		434			
Olives	400	2,173	2,000		
Passionfruit	40	17	110	1.3	0.5
Pears		473	5,070		8.0
Persimmon	50	250	2,250	4.0	6.7
Summerfruit	258	1,830	23,094	49.1	31.4
- Apricots	58	332	4,742		6.7
- Cherries	87	646	4,494		23.8
- Nectarines	57	328	4,572		0.2
- Peaches	76	307	6,505		0.4
- Plums	78	217	2,781		0.3
Tamarillos	40	110	475	1.6	0.4
Other fruit		250			0.4
<b>Total fresh fruit (excl. Kiwifruit, Grape Wine, Apples)</b>					<b>133.1</b>

Sources: <sup>a</sup>Statistics New Zealand - Agricultural Production Census 30 June 2007 and <sup>b</sup>Sector estimates of first point of sale values, <sup>c</sup>Statistics New Zealand, MAS/HortNZ & NZ HEA report 'Barriers to Export Trade' 2011 edition.  
Blank entries indicate either that the information is not available or items are valued at less than \$100,000.

- Fresh fruit exports in 2011 of \$1.46 billion were dominated by kiwifruit (66%), apples (25%) and avocados (4%) with the remaining \$80 million (5%) being berryfruit, citrus and summerfruit, plus \$18.1 million of other fresh fruits and nuts.
- Avocado exports in 2011 at \$51.3 million were 14.3% less than the 2010 export level although the highest alternate year export level for this biennial bearing fruit.
- Summerfruit exports of \$31.4 million in 2011 were close to double the 2002 to 2007 average exports value of \$16.7m. Exports of cherries at \$23.8m were 76% of summerfruit exports.

## Processed fruit

Sales value (\$m)

	Sales value (\$m)	
	Domestic <sup>b</sup> 2010/11	Export <sup>c</sup> (fob) 2011
Apple juice	45.9	19.6
Avocado oil	0.2	2.2
Other fruit juices	92.1	17.5
Other fermented beverages		13.4
Dried fruit		2.3
Frozen fruit		10.8
- Blackcurrants		1.6
- Blueberries		1.7
- Boysenberries		4.3
- Kiwifruit		2.5
- Raspberries		0.1
- Other		0.6
Fruit preparations		34.8
- Apples		9.2
- Blackcurrants		10.6
- Kiwifruit		0.8
- Fruit mixture preps.		2.8
- Pear		0.2
- Other		11.2
Hops	1.7	8.5
Jams, jellies and purees		42.7
Nuts		7.3
Olive oil	2.3	0.7
<b>Total processed fruit</b>		<b>159.8</b>

Fruit used for processing is produced on the orchard areas described in the fresh fruit table.  
Blank entries indicate either that the information is not available or items are valued at less than \$100,000

- Fresh berryfruit exports of 22.7 million reached a new high with blueberries at \$18.2m accounting for 80% of fresh berryfruit exports. A further \$7.7m export value is in the form of frozen berryfruit of which 56% (\$4.3m) are frozen boysenberries.
- Exports of fruit jams were \$42.7m fob in 2011 and 11.7% down on 2010 but 81% above 2009 exports of \$23.7m.
- Fruit preparations, often used as ingredients in yoghurts and other food, were exported to the value of \$34.8m in 2011 with the dominant varieties being blackcurrant preparations (\$10.6m) and apple preparations (\$9.2m).

## Apricots for the European market



Analysis of the European market has identified a window of opportunity for fresh New Zealand apricots in March and April. Systems that enable longer term storage, as well as cultivars that mature late in the season and store well, will ensure delivery of the high and consistent quality desired by consumers.

Trials of existing cultivars have resulted in the development of storage and orchard management protocols that optimise fruit quality at harvest and help maintain the quality of fresh apricots delivered to the consumer. Trials of modified atmosphere bags used in cool storage also indicate that the storage life of apricots can be extended.

These trials have identified important traits for long storage and will be used in the development and identification of new selections, as well as supporting the number of markets accessible by sea-freight due to the extension of storage life.

## Fresh and processed vegetables

## Sales value (\$ million, fob)

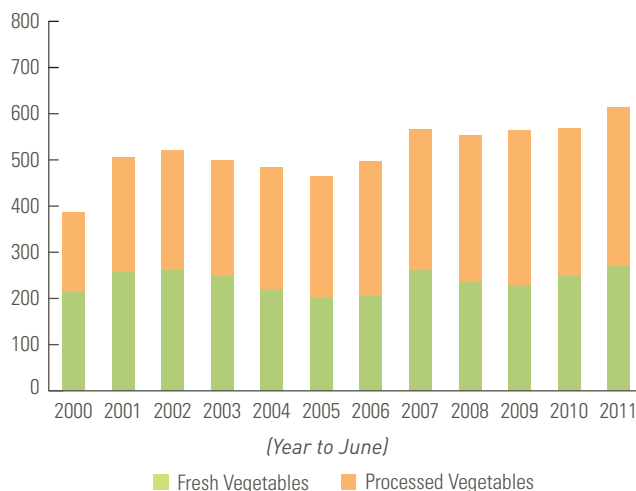
	Growers <sup>c</sup> (no.)	Planted area (ha)	Crop volume <sup>c</sup> (tonnes)	Domestic <sup>b</sup> 2010/11	Exports 2011	
					Fresh	Processed <sup>d</sup>
Asparagus	81	511 <sup>c</sup>	2,090	10.0	3.0	0.1
Beans	60	1,500 <sup>c</sup>	12,000	12.8		43.5
Brassicas	260	3,875	82,000	80.3	2.1	
- Broccoli	150	2,247	18,000			
- Cabbage	150	768	40,000			
- Cauliflower	120	860	24,000			
Capsicums	65	55 <sup>c</sup>	11,000	29.3	36.0	
Carrots	50	1,150 <sup>c</sup>	85,000	30.0	9.0	1.1
Cucurbits	200	283 <sup>c</sup>	1,770			
Garlic	28	200 <sup>c</sup>	900	6.5	1.3	
Kumara	45	1,500 <sup>c</sup>	17,500	25.0		
Lettuce - outdoor	80	1,309		41.8	1.6	
Lettuce - greenhouse	70	22				
Melons	46	259			1.2	
Mushrooms	21	42 <sup>c</sup>	8,500	41.1	2.1	
Onions	105	5,100	188,200	25.0	110.2	
Peas	400	10,720 <sup>c</sup>	59,000	50.0		81.8
Potatoes	234	10,600 <sup>c</sup>	522,000	451.0	20.3	89.0
Pumpkin	129	1,066	31,000			
Shallots	10	25			1.0	
Silverbeet/Spinach	37	260	3,500	6.0		
Squash	52	6,850 <sup>c</sup>	85,000	2.9	64.0	
Sweetcorn	256	5,800 <sup>c</sup>	60,000	20.0	0.1	40.5
Tomatoes - greenhouse	300	120 <sup>c</sup>	40,000	108.0	15.4	
Tomatoes - outdoor	20	757	50,000	5.0		3.1
Mixed vegetables	Made from combinations of the above crops					40.7
Dried vegetables	Excluding peas, beans, corn					5.9
Vegetable preparations						4.8
Vegetable juices						22.8
Other Vegetables <sup>a</sup>	2,609					2.9
<b>Total</b>	<b>3,409<sup>d</sup></b>	<b>54,6130</b>			<b>270.2</b>	<b>343.8</b>

Crops areas as reported in June 2007 Census or as updated by later sector estimates. Production of some vegetable crops, e.g. carrots and potatoes, include product volumes for processing such as freezing, canning, juicing and artificial drying. <sup>a</sup>Includes taro, celery, parsnips, spring onions, Asian vegetables (excl. Chinese cabbage), yams, wriitoo, leeks, vegetable shoots, shallots, swedes and some others. <sup>b</sup>Sector estimates. Blank entries indicate that the information is not available. <sup>c</sup>Many growers produce multiple crops. Sources: Statistics New Zealand - Agriculture Census 2007; Horticulture NZ, MAS/ HortNZ & NZ HEA report 'Barriers to Export Trade' 2010 edition.

- In 2011 New Zealand exports of fresh vegetables increased \$22.5m (+9.1%) with the largest gains being: squash \$10.8m, tomatoes \$5.3m, capsicums \$2.2m and carrots \$1.8m. Exports of onions were \$3.1m (2.8%) less than in 2010. The impressive gain in squash exports to \$64m is below the 2004 figure of \$72m fob.
- Frozen vegetable exports in 2011 increased \$19.6m to \$214.3m, but not enough to offset the \$22.6 million decreased the year prior. The highest value frozen vegetable export categories in 2011 were potatoes \$81.0m (\$49.8m in 2002), peas \$50.6m (\$49.8m in 2002), mixed vegetables \$40.7m (\$45.6m in 2002) and sweetcorn \$23.8m (\$44.5m in 2002).
- Processed vegetables were 56.0% of total vegetable exports in 2011 and consisted of \$214.3m as frozen vegetables, \$49.5m of dried vegetables, \$57.2 m of vegetables in other processes including vegetable preparations, and \$22.8m as vegetable juices.



## Vegetable exports 2000 to 2011 (\$ million, fob)

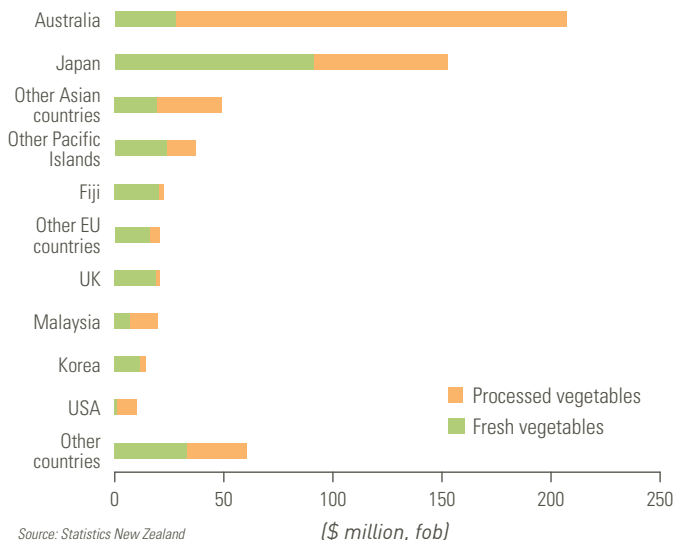


Source: Statistics New Zealand

- Exports of dried vegetables at \$49.5m in 2011 were similar in total to 2010. Dried vegetable exports are dominated by dried peas that had an export value in 2011 of \$30.9m. Over the past five years, dried pea export values have fluctuated between \$25m and \$35m fob.
- Vegetable juice exports of \$22.8m in 2011 were almost double the 2009 export value and treble the 2006 value of \$7.1m.
- Carrot production of an estimated 85,000 tonnes includes over 35,000 tonnes juiced for export.
- Within the vegetable sector there is a trend in some products where there are fewer growers by number but the volume may be higher. For example capsicums at one time had over 100 commercial growers, but now over 80% is grown by just five companies.

Sources: Statistics New Zealand, Horticulture NZ

## Destinations of New Zealand vegetable exports 2011 (\$ million, fob)



## Sequencing the potato genome

The genome of the potato, the most produced vegetable crop in New Zealand, has been sequenced by an international consortium of scientists, leading the way to smarter breeding of new cultivars.

Analysis of the "genetic blueprint" showed that the potato has at least 39,000 genes. The sequencing will allow scientists to identify those genes that control characteristics of interest to the producer – such as yield, quality and disease resistance – as well those with added appeal for consumers and for the wider food industry needs – such as processing quality, nutritional value and novelty – and to use this new knowledge to better target traditional breeding of new cultivars and reducing the time taken to deliver them to market.

New Zealand scientists were key contributors to the Potato Genome Sequence Consortium that included 29 research groups from 14 countries.

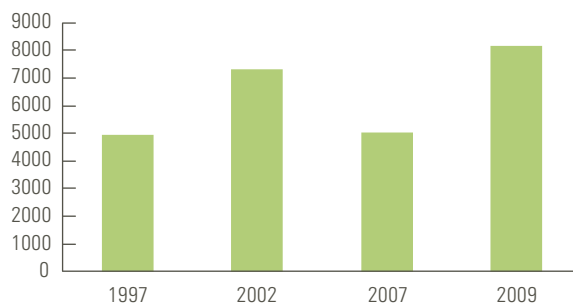


## Organic production

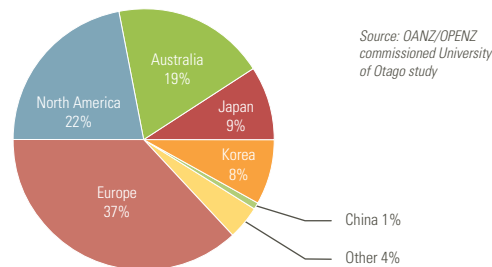
- Organic production systems are important in New Zealand horticulture although currently represent only a small proportion of total horticultural production.
- The value of organic fresh fruit and vegetables exported from New Zealand in 2009 has been calculated at \$85.9 million, equivalent to 2.1% of New Zealand's total horticultural exports in that year.
- In 2009 domestic sales of organic fruit and vegetables was estimated to be \$2.45 million, excluding direct-to-consumer sales and sales in farmers' markets of which there were 44 across New Zealand.
- Sales of organic fresh fruit and vegetables at retail organic specialty shops in New Zealand was estimated at \$3.35 million in 2009. The annual value of all categories of organic products (includes meat, dairy, cosmetics and beverages) was estimated to have increased 51% between 2007 and 2009.

Source: OANZ/OPENZ commissioned University of Otago study

## NZ land area under certification, horticulture and cropping (hectares)



## Destination of organic exports (2009)



The above percentages for 2009 include exports of horticulture products valued at \$85.8m and other exports valued at \$84.6m.



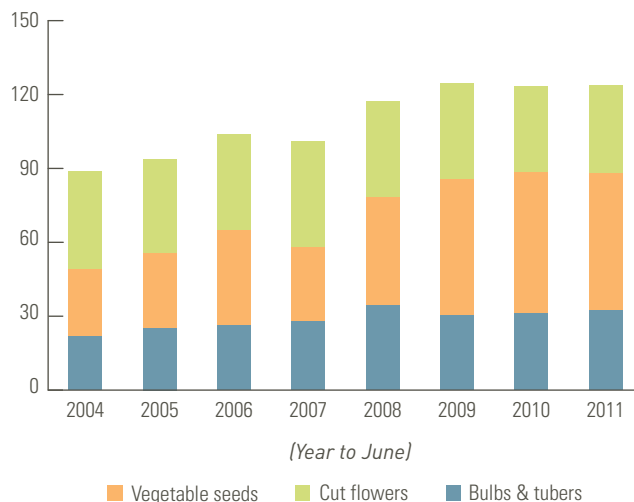
### Exports of flowers, plants, seeds and other products (\$ million, fob)

Selected HS Items	1990	1995	2000	2005	2010	2011
<b>Cut flowers</b>						
- Chrysanthemums				0.2	0.2	0.2
- Hydrangeas				2.8	2.7	2.7
- Liliium		1.5	1.9	0.4	0.2	0.3
- Nerines			0.6	0.6	0.2	0.1
- Orchids	8.2	14.6	22.4	18.4	20.8	21.7
- Paeonies			0.5	1.2	1.7	1.7
- Pittosporum				0.4	1.2	1.0
- Proteaceae	0.5	1.5	1.4	1.1	0.9	1.0
- Sandersonia	0.2	5.6	3.1	0.8	0.2	0.2
- Zantedeschia (Calla Lily)	1.9	6.6	7.7	5.5	3.7	3.2
- Other Foliage	0.7	0.2	0.6	0.3	0.6	0.8
- Other cut flowers	7.8	19.9	8.5	7.0	2.7	2.8
<b>Plants</b>						
- Other live plants	2.5	3.5	5.6	14.5	6.6	5.9
<b>Seeds</b>						
- Flower seeds	<0.1	0.3	2.1	0.3	0.3	0.6
- Fruit seeds				0.4	1.9	1.0
- Cabbage seeds				3.2	5.0	4.6
- Carrot seeds				6.8	7.6	16
- Radish seeds				11.7	21.4	19.1
- Other veg seeds	2.1	7.3	15.9	8.5	23.4	16.2
- Tree seeds			1.6	0.6	1.5	1.0
<b>Bulbs, tubers, corms</b>						
- Liliium				9.4	16.8	16.4
- Sandersonias				2.2	0.7	1.4
- Tulips				6.4	9.6	10.1
- Zantedeschia (Calla Lily)			1.5	5.4	3.5	3.9
- Others	2.0	6.3	10.1	1.8	0.6	0.4
Sphagnum moss	11.0	17.3	15.3	8.8	6.3*	6.1
<b>Total</b>	<b>36.9</b>	<b>84.6</b>	<b>98.8</b>	<b>118.7</b>	<b>140.3</b>	<b>138.4</b>

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

- New Zealand's largest export market for cut flowers was Japan with orchids at \$12.5 million being one-third of the total cut flower exports. Of the 40 other markets to which New Zealand cut flowers were exported, only three exceeded \$1.0m fob: USA \$6.7m (orchids \$4.8m), Hong Kong \$1.8m and Canada \$1.3m.

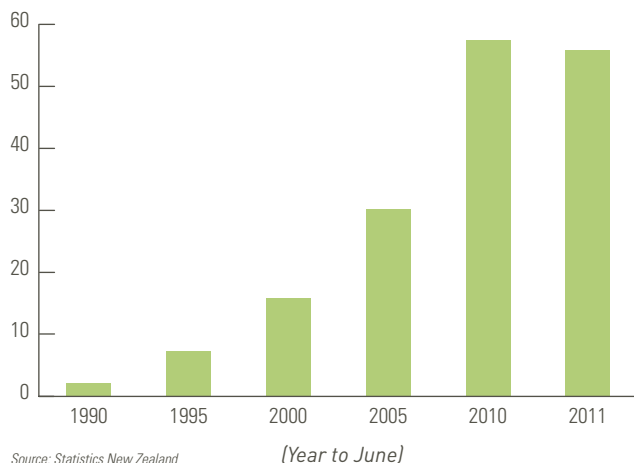
### Exports of flowers, seeds and bulbs (\$ million, fob)



Source: Statistics New Zealand

- At \$35.6 million, exports of cut flowers and foliage in 2011 was a marginal increase on 2010 but significantly less than New Zealand's 1995 export level of \$49.9 million.
- Exports of vegetable seeds had been doubling every five years to reach \$57.4 million fob in 2010 but stabilised in 2011 with exports at \$55.9m of which radish seeds were \$19.1m (The Netherlands \$5.3m, Japan \$4.7m, Korea \$2.6m, USA \$2.2m) and carrot seeds \$16.0m (The Netherlands \$12.9m, France \$2.5m).
- The countries importing the highest total values of vegetable seeds from New Zealand in 2011 were: The Netherlands \$22.2m, Japan \$7.5m, France \$5.1m.

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

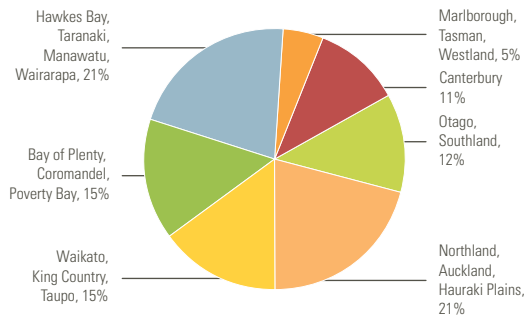


Source: Statistics New Zealand

## BEES

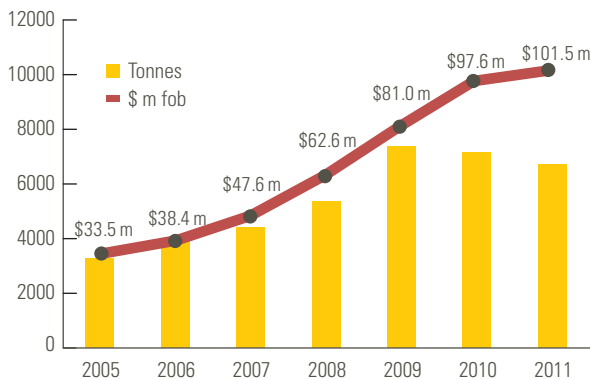
- Bees are crucial to New Zealand's primary sector, pollinating approximately one third of our food sources and playing a significant role in determining crop yields.
- Honey production of 9,450 tonnes in 2011 was down 25% on 2010 production of 12,553 tonnes, due primarily to unfavourable weather conditions. The 6-year average (2006 to 2011) was 11,172 tonnes.
- As at June 2011 New Zealand had 390,500 hives (2010: 376,500 hives) that produced an average yield of 24.2 kg/hive, which was below the 6-year average of 32.3 kg/hive.
- 70% of New Zealand's honey crop is now exported with the major honey export markets in 2011 being UK \$31.5m (\$29.0m in 2010), Australia \$12.1m (\$14.3m), Singapore \$10.0m (\$10.9m), Hong Kong \$10.3m (\$9.7m), Japan \$9.9m (\$9.0m), USA \$6.2m (\$5.0m), and less than \$5m to each of 25 other markets
- MAF and the National Beekeepers' Association maintain a register which contains information on all beekeepers, including the location of their apiaries and the condition of their bees for biosecurity purposes.

### New Zealand honey production 2011 (9,450 tonnes)



Source: MAF Horticulture & Arable Monitoring Report 2011 (info. exASUREQuality Ltd.)

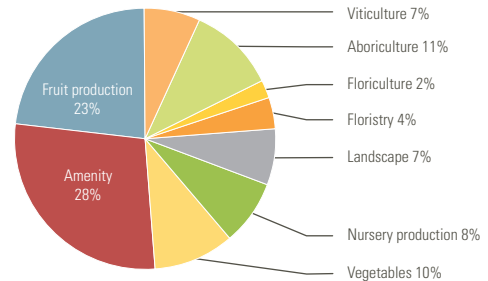
### New Zealand natural honey exports 2005 - 2011



Source: Statistics New Zealand

## HORTICULTURAL TRAINING

### Trainees by category (year to December 2011)



Source: Horticulture Industry Training Organisation Inc.

- An increase of 8% (224) trainees in 2011 compared to 2010 masks changes between categories. Amenity horticulture (e.g. sports grounds) trainees increased 285 (50%) whereas trainees in fruit production decreased by 124 (15%) and in viticulture 88 (30%). Trainees in landscape horticulture were 34 less (14%). In each of the other categories the increased number of trainees was between 7 and 38.

### Persons in horticultural training, per year

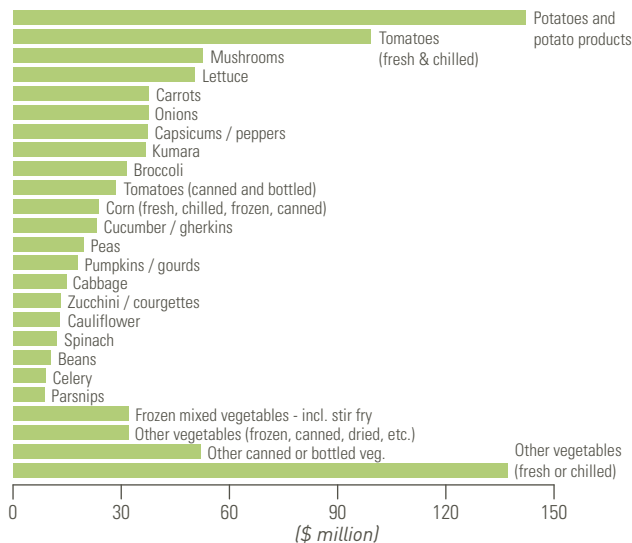


Source: Horticulture Industry Training Organisation Inc.



## New Zealand consumer spend on vegetables (\$ million)

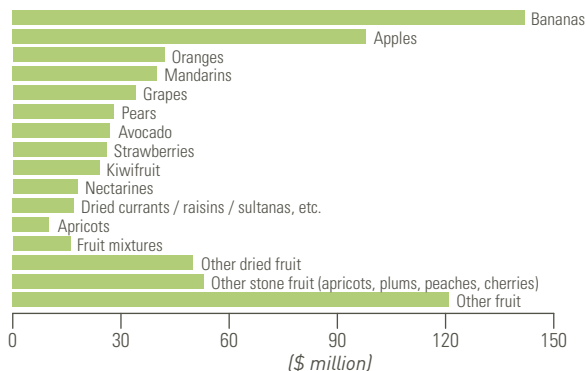
(fresh / chilled / dried / canned / bottled / frozen)



Note: sample base is New Zealand resident private households; i.e. excludes overseas visitors, persons living in motels and hotels etc. Individual line items are subject to sampling errors that as a guide are typically 12% (+/-).

## New Zealand consumer spend on fruit (\$ million)

(fresh / chilled / dried / canned / bottled / frozen)



Source: Statistics New Zealand: triennial Household Economic Survey (HES), 2010

In 2010, New Zealand households spent an estimated \$2.4 billion on fruit, vegetables and wine, with

- \$ 615 million on fresh and chilled fruit
- \$ 130 million on processed fruit
- \$ 745 million on fresh and chilled vegetables
- \$ 225 million on processed vegetables
- \$ 730 million on wine

Source: Statistics New Zealand triennial Household Economic Survey (HES) 2010. N.B. survey is of households only and excludes overseas visitors, person living in hotels and motels, etc., and excludes restaurants and takeout meals

## Investment in the horticultural industries, 2011

	Crop area (ha)	On-farm (\$ million)	Off-farm (\$ million)	Total (\$ million)
Apples, pears & nashi	8,973	1,046	1,046	
Wine grapes	33,600	5,014	15,042	
Kiwifruit	12,825	3,614	1,084	
Summerfruit	1,830	87	87	
Avocados	5,224	249	249	
Citrus	999	48	48	
Berryfruit	2,607	124	124	
Nuts	1,484	71	71	
Olives	2,173	103	103	
Other subtropical fruit	2,716	129	129	
Hops	370	18	53	
Other fruit	250	12	12	
<b>Total fruit</b>	<b>73,051</b>	<b>10,514</b>	<b>18,048</b>	<b>\$28,562</b>
Potatoes	10,600	316	474	
Peas & Beans	12,220	365	729	
Onions	5,100	152	152	
Squash	6,850	204	204	
Sweetcorn	5,800	173	346	
Broccoli, cabbages & cauliflowers	3,875	116	116	
Carrots	1,150	34	34	
Asparagus	511	15	30	
Lettuce	1,309	39	59	
Other vegetables	7,198	215	322	
<b>Total vegetables (outdoor)</b>	<b>54,613</b>	<b>1,629</b>	<b>2,467</b>	<b>\$4,096</b>
Protected - high tech	85	128	38	
- greenhouse tomatoes	120	300	90	
- low/medium tech	260	182	55	
<b>Total horticultural</b>	<b>128,129</b>	<b>12,753</b>	<b>20,698</b>	<b>\$33,451</b>

Sources: Statistics New Zealand - Agricultural Production Census - 2007 + Industry figures. MAF Sector Monitoring Reports 2011 + estimates.

- Total investment in horticultural industries is calculated to be approximately \$33.5 billion, a reduction from the \$38 billion in 2010 calculated on a similar basis. Much of this reduction is attributable to vineyard values being reduced by approximately 18 percent from 2010 values. Note that for the wine sector over 60 percent of the calculated value is invested in off-farm facilities such as wineries and packhouses.
- Total planted hectares under horticulture in 2011 was approximately 128,000 ha and similar to the 2010 calculation.
- Kiwifruit orchards were calculated to have decreased in value by approximately 9% in the year to June 2011. Kiwifruit orchards have the highest capital investment per hectare with the weighted average for vineyards approximately 52 percent less and for pipfruit, approximately 62 percent less per hectare.
- Calculations of investment in horticultural industries have been made on a consistent basis between 2010 and 2011 using benchmarks calculated from MAF Sector Monitoring Reports model budgets with adjustments made for weighted average crop areas between the major horticultural crops in New Zealand's pipfruit, kiwifruit and wine grape growing areas.

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

Regional Council	Apples		Wine grapes		Kiwifruit		Summerfruit		Avocados		Citrus		Berryfruit		Nuts		Olives		Other subtropical		Other fruit		Total fruit
	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	
Year ended 30 June	30	121	634	16+	1,325	324+	8+	92+	231	155+	34	2970+											
Northland	179	411	309	48+	130	153	161	187+	290	168	50	2086+											
Auckland	228	133	782	34+	144	23	340+	61+	79	91+	36	1951+											
Waikato	8	25	10,249	9+	2,210	119	45+	85+	56	159	41	13006+											
Bay of Plenty	190	1,812	284	2+	58	1003	C	C	6	92+	10	3457+											
Gisborne	5,206	4,930	220	895	31	20+	29+	3	317	217+	17	11885+											
Hawke's Bay	1	-	C	C	68	1+	C	C	C	C	18	115+											
Taranaki	35	10	138	10+	19	3+	18+	44+	C	78+	20	375+											
Manawatu-Wanganui	127	860	C	27+	8	1+	14+	39+	254	36+	39	1405+											
Wellington	2438+	805+	614	10+	9	1+	925+	22+	148	296+	13	5281+											
Tasman-Nelson	25	17,169	C	67	C	C	2+	26+	240	27+	39	17595+											
Marlborough	-	-	-	0	-	C	C	C	C	C	C	3+											
West Coast	249	1,683	C	122	C	1+	736	642+	437	30+	51	3951+											
Canterbury	472	1,642	-	977	-	0	11+	144+	44	23+	12	3325+											
Otago	C	C	-	C	-	C	C	30+	C	C	12	42+											
Southeast	59	15	20	77	2	185	208	109	71	98	6	850											
Other/non allocated	9,247	29,616	13,250	2,294	4,004	1,834	2,497	1,484	2,173	1,500	398	68,297											
Total 2007	11,715	17,359	11,964	2,915	3,099	2,093	2,754	1,841	2,590	820	1,385	58,535											
%	-21%	71%	11%	-21%	29%	-12%	-9%	-19%	-16%	83%	-71%	17%											

Major changes since 2002 census: wine grapes increased 12,257 ha (+71%); kiwifruit increased 1,286ha (+11%); avocados increased 905 ha (+29%); olives decreased 417 ha (-16%); and nuts decreased 357 ha (-19%). 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. Note: There may be some variations between the data reported in this section with those reported for the individual horticultural sectors. This is attributed to factors such as differences in sampling times, working definitions and the number of respondents. For some crops the planted areas have not reached full production.

## Distribution of vegetables by Regional Councils (area planted ha)

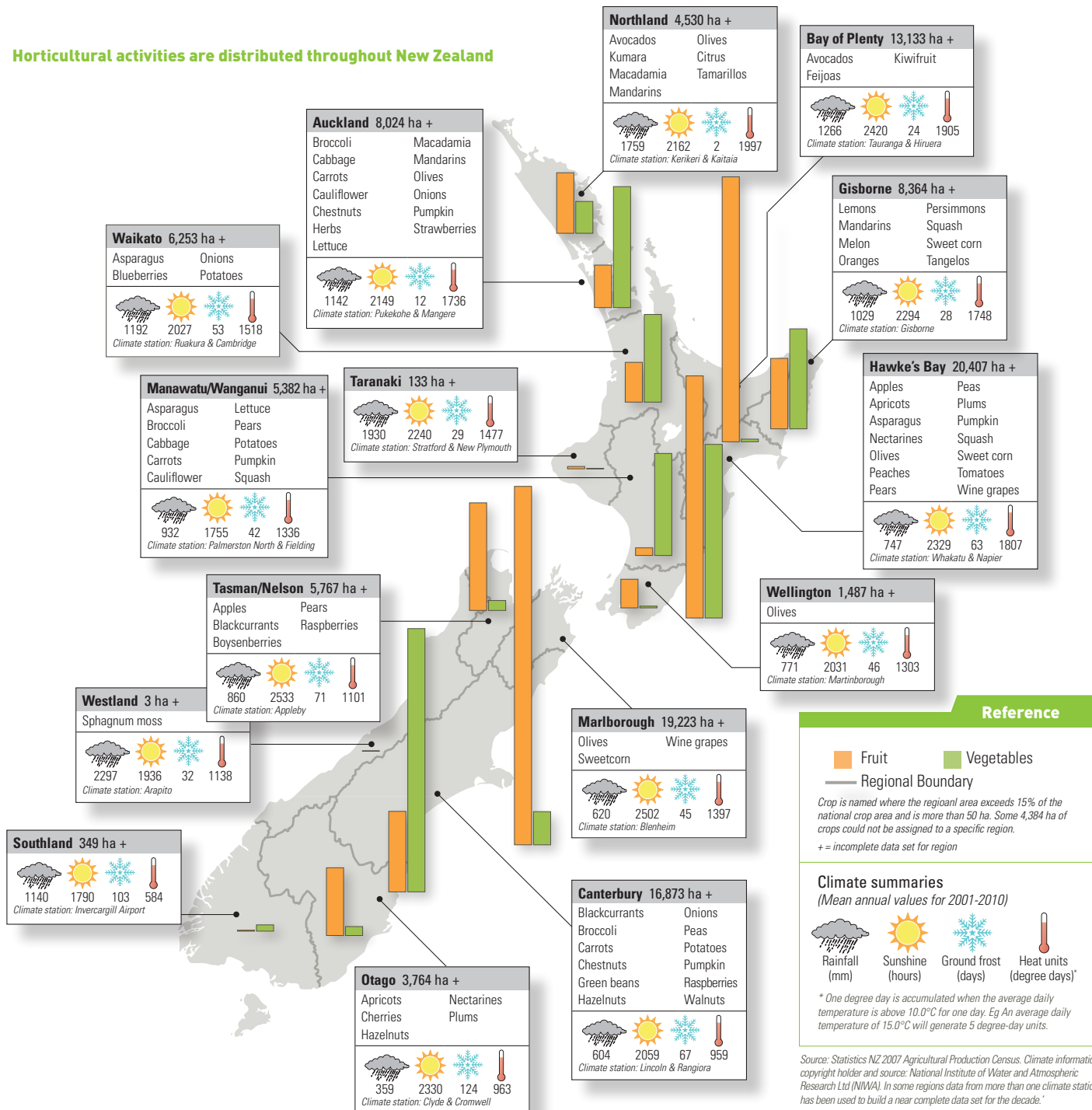
## Distribution of indoor crops (m<sup>2</sup>; 000s)

Regional Council	Potatoes		Peas & Onions		Squash*		Sweetcorn		Broccoli		Carrots		Asparagus		Lettuce		Other veg		Total veg		Tomatoes		Capsicum		Nursery Flowers		Other indoor crops		bulbs etc		2007		2007	
	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007			
Year ended 30 June	31	C	25	35	35	3	C	13	1,418	1560+	25	C	16	36	141	37+																		
Northland	1,316	64	1,531	251	46	921	344	C	479	986+	5938+	438	364	108	163	25	150+																	
Auckland	2,022	8	1,477	C	92	C	199	120	384+	4302+	285	C	77	31	175+	46+																		
Waikato	C	C	C	C	22	C	-	C	17	88+	127+	13	C	C	C	72	113+	32+																
Bay of Plenty	C	276+	C	2,773	1,798	C	-	C	60+	4907+	C	C	C	C	C	-	C	9																
Gisborne	491	1,062	517	3,117	2,411	51	C	189	14	8522+	8	6	C	49	22+	C																		
Hawke's Bay	18	C	-	C	C	C	C	C	18+	C	C	C	C	C	C	C	C	C																
Taranaki	1,578	4+	319	841	34	870	247	245	214	655+	5007+	C	1	1	C	56	33+																	
Manawatu-Wang.	C	C	C	C	C	26	C	-	C	56	82+	C	C	C	C	C	10+	12+																
Wellington	39+	C	26+	C	14	148+	C	6	82+	171+	486+	72+	C	21+	C	C	19+																	
Tasman-Nelson	C	676+	-	-	778	C	C	C	C	174+	1628+	C	C	C	C	C	C	C																
Marlborough	C	0	-	-	0	-	-	-	C	C	C	C	C	C	C	65	C	C																
West Coast	4,273	5242	686	C	941	520	488	94	47	631+	12922+	81	20	33	86	147+	63+																	
Canterbury	168	3+	C	-	C	221	C	C	44	3+	439+	C	C	C	C	58	C	22+																
Otago	63	C	-	-	11	C	-	-	C	233+	307+	C	C	C	C	C	C																	
Southeast	51	180	38	767	39	1,072	238	138	279	732	3534	83	C	-	140	389	431																	
Other	10,050	7,515	4,594	7,774	6,210	3,875	1,320	871	1,309	6,261	49,779	1,005	585	266	638	1,107	856+																	
Total 2007	10,611	9,108	5,488	6,560	6,384	3,746	1,831	2,015	1,287	5,690	52,721	1,665	434	550	913	2,342	974																	
2002	-5%	-17%	-16%	19%	-3%	3%	-28%	-57%	2%	10%	-6%	-86%	26%	-107%	-43%	-112%	-14%																	
%																																		

See above notes

For more information visit [www.maf.govt.nz](http://www.maf.govt.nz)

## Horticultural activities are distributed throughout New Zealand







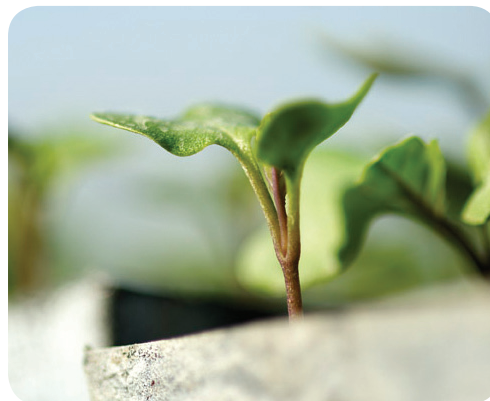
## Science through the value chain

Plant & Food Research's purpose is to enhance the value and productivity of New Zealand's horticultural, arable, seafood and food and beverage industries to contribute to economic growth and the environmental and social prosperity of New Zealand.

Our focus is on using science innovation to enable New Zealand industry to produce more and better food from less land, with reduced environmental impacts and fewer chemical, carbon and water inputs.

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Gratefully acknowledge contributions made by the following organisations:



*New Zealand Fruitygrowers Charitable Trust*







**Ministry for Primary Industries**  
Manatū Ahu Matua



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13. *5 + A Day Charitable Trust / United Fresh. [www.5aday.co.nz](http://www.5aday.co.nz)*
14. *Multiple product group contacts for updating available domestic production data.*

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