



# APICULTURE

## Ministry for Primary Industries 2014 apiculture monitoring programme

### KEY POINTS

- The number of registered beekeeping enterprises increased by 12 percent in 2013/14 bringing enterprise numbers close to pre-varroa levels. The North Island continued to dominate new registrations accounting for 73 percent. Total hive numbers reached 500 000, an increase of 55 000 from the previous year.
- The New Zealand honey crop for 2013/14 was estimated at 17 600 tonnes, a 225 tonne (1.3 percent) fall from last year's record crop. This fall in production was driven by poor climatic conditions in the lower South Island. The North Island honey crop increased by 12 percent while the South Island fell by 30 percent from the previous year.
- New Zealand exported \$187 million of honey (8706 tonnes) in the June 2014 year. The value of exports increased by almost 30 percent driven by rises in volumes (8 percent) and prices. Prices increased for all honey types due to strong world demand.
- The key issues facing the apiculture industry are the management of varroa and ongoing concerns over bee health.
- The Ministry for Primary Industries (MPI) is working with industries on a range of projects to support the health and development of bees and honey production. Initiatives include:
  1. Research into honeybee genetics and bee nutrition.
  2. The commercial development of mānuka plantations.
  3. Development of tests to define monofloral and multifloral mānuka honey.

Table 1: New Zealand honey crop estimates, 2009 to 2014

Year ended 30 June	2009 (tonnes)	2010 (tonnes)	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 (tonnes)	6-year average (tonnes)
Northland/Auckland/Hauraki Plains	1 756	1 285	2 000	1 200	1 905	2 580	1 788
Waikato/King Country/Taupo	1 864	1 584	1 400	1 535	2 465	2 980	1 971
Coromandel/Bay of Plenty/Rotorua/Poverty Bay	2 250	2 376	1 425	845	3 270	3 525	2 282
Hawke's Bay/Wairarapa/Manawatu/Taranaki/Wellington	2 082	2 318	1 965	2 015	4 130	4 125	2 773
Marlborough/Nelson/West Coast	1 140	1 400	470	940	1 110	1 335	1 066
Canterbury/Kaikoura	1 718	2 200	1 045	1 650	2 815	1 795	1 871
Otago/Southland	1 755	1 390	1 145	2 200	2 130	1 270	1 648
<b>New Zealand (total)</b>	<b>12 565</b>	<b>12 553</b>	<b>9 450</b>	<b>10 385</b>	<b>17 825</b>	<b>17 600</b>	<b>13 400</b>
Yield/hive (kg)	34.7	33.3	24.2	24.6	39.4	34.7	31.8

**Note**

See 'Information about the Commentary' for details on how the annual honey crop is estimated.

**Source:**ASUREQuality Limited.

## FINANCIAL PERFORMANCE OF APICULTURE IN 2013/14

Beekeepers in Canterbury, Otago and Southland had a particularly small honey crop despite strong honey prices. This will likely decrease profitability in the South Island compared to last year. Beekeepers in the lower North Island, managed to produce a similar crop to last year, but did so with more beekeepers and hives.

Although the total honey crop for this season remained high, it was shared among considerably more hives and beekeepers, meaning lower production per hive. Despite decreased honey volumes per hive, profitability was maintained by increased honey prices, increased pollination fees and the relative affordability of inputs due to New Zealand's high exchange rate.

### REVENUE

Beekeepers have a diverse range of revenue streams including honey production, pollination services, live bee exports and propolis production. The composition of revenue streams for each beekeeper can differ significantly. Beekeepers often seek to diversify their revenue streams to buffer themselves against market and climatic fluctuations.

#### 2013/14 honey production

The 2013/14 season produced a honey crop of 17 600 tonnes, which is 225 tonnes below last year's record crop and 31 percent (4200 tonnes) above the six-year average of 13 400 tonnes (Table 1). The crop was bolstered by favourable climatic conditions in the North Island and a continued increase in hive numbers across the country. Poor weather conditions in the southern South Island and a poor southern rātā crop dragged down total crop volumes. While total honey production remained relatively high in 2013/14, yield per hive was down 12 percent (4.7 kilograms) on last year but remained 9 percent (2.9 kilograms) above the six-year average.

After coming through one of the warmest winters on record, bees had a promising start to spring. Two significant spring wind events had a minor effect on mānuka flowering in more northern areas but a generally warm start to the summer translated into early honey flow in most parts of the country.

In the North Island lower than average rainfall provided plenty of foraging days for bees and translated into particularly good early season nectar flows. While a southerly change in summer resulted in cooler weather slowing the bees, autumn brought dry and settled weather to the North Island which resulted in a very good pasture crop.

By contrast, much of the South Island experienced high rainfall, with flooding in some areas. This poor weather coupled with unfavourable phenology of the southern rātā resulted in a South Island honey crop nearly 30 percent (1650 tonnes) less than last year.

The arrival of the Giant Willow Aphid (*Tuberolachnus salignus*) in New Zealand resulted in some beekeepers getting an additional late season honeydew flow off willows in 2013/14. However, beekeepers have some concerns about the quality of this honey and the effect of this additional food source on the size and overwintering ability of wasp nests.

#### Hive numbers continued to increase

Hive numbers increased by around 55 000 from last year taking the total number of hives up to just over 500 000 (Figure 1). The number of registered beekeeping enterprises increased by a further 13 percent (535 enterprises) in 2013/14 to 4814 enterprises which brought the total number close to pre-varroa levels.

The ratio of beekeeping enterprises between islands continues to move in favour of the North Island (Table 2) with 73 percent of new registrations (391 additional enterprises) in the last 12 months stemming from the North Island. Hive numbers in the North Island increased by 16 percent (50 600 hives) compared with a three percent (4600 hives) increase in the South Island.

Increased hive numbers in the North Island were the result of both natural increases and hive purchases from the South Island. Strong mānuka honey prices have incentivised existing major commercial players in the North Island to expand their production and supply base, and encourage new entrants into the industry. The demand for hives is expected to continue into the coming season as beekeeping operations purchased by major

**Table 2: New Zealand beekeeping enterprise, apiary and hive statistics<sup>1</sup> as at 30 June 2014**

	Beekeepers	Apiaries <sup>2</sup>	Hives
Northland/Auckland/Hauraki Plains	1 201	5 636	79 120
Waikato/King Country/Taupo	405	3 280	70 884
Coromandel/Bay of Plenty/Rotorua/Poverty Bay	494	4 450	95 145
Manawatu/Taranaki/Hawke's Bay/Wairarapa/Wellington	1 048	6 894	117 670
Marlborough/Nelson/West Coast	396	2 573	35 714
Canterbury/Kaikoura	745	4 386	59 906
Otago/Southland	525	3 449	48 808
<b>New Zealand</b>	<b>4 814</b>	<b>30 668</b>	<b>507 247</b>

#### Notes

<sup>1</sup> Registered beekeeping enterprises, apiaries and hives under the National Pest Management Strategy for American Foulbrood.

<sup>2</sup> Regional location of apiaries is at their wintering sites.

Source:ASUREQuality Limited.

commercial players often receive significant capital investments to grow hive numbers.

Beekeeping enterprises with 50 to 500 hives recorded a 17 percent increase (64 enterprises) in numbers. This indicates that many beekeepers appear to be starting in the industry with 50 to 500 hives. There was little change in the number of beekeepers in the 500 to 1000 hive category signalling that they are likely cutting back the number of hives they manage in response to the increased maintenance required with managing varroa (Table 3).

**World demand continues to lift honey prices**

Honey prices paid to beekeepers continued to climb this year as world supply fell short of demand. Shortages were a result of poor climatic conditions, ongoing bee health issues in several major honey producing countries and increased demand for honey internationally.

New Zealand honey exports reached 8706 tonnes and \$187 million in the year to June 2014, an increase of 8 percent in volume and almost 30 percent in value on the previous year (Figure 2). The volume of honey exported in retail packs has increased significantly since 2007, with bulk honey

exports declining since 2009. In the year ending June 2014, 78 percent (6357 tonnes) of New Zealand honey was exported in retail packs and 22 percent (1804 tonnes) was exported in bulk packs (Figure 3).

Prices paid to beekeepers for light clover honey rose 10 to 13 percent in 2013/14 as a result of the severe shortage of light honey grades worldwide. Dark honey prices increased 17 to 22 percent over the same period. This was influenced by increasing demand for mānuka blends which are cheaper than monofloral mānuka honey. Prices offered for mānuka honey also lifted this season although the increase was not as marked as price rises last season.

**OTHER REVENUE SOURCES**

**Pollination**

The kiwifruit industry continued to recover from the arrival of the bacterium *Pseudomonas syringae pv. actinidiae* (Psa) this year. Most Hort 16A vines which are susceptible to Psa have now been removed and are quickly being replaced by the new G3 cultivar. Beekeepers report that while G3 flowers slightly later than Hort 16A, there is enough time between the end of

**Table 3: Distribution of beekeeping enterprises<sup>1</sup> by hive number as at 30 June 2014**

As at 30 June	2010	2011	2012	2013	2014
1 to 50 <sup>2</sup>	2 440	2 722	3 237	3 671	4 126
5 hives or less	1 745	2 044	2 463	2 828	3 162
51 to 500 <sup>3</sup>	319	336	351	379	443
501 to 1000	99	109	115	122	124
>1000	99	100	103	107	121
<b>Total</b>	<b>2957</b>	<b>3267</b>	<b>3806</b>	<b>4279</b>	<b>4814</b>

**Notes**

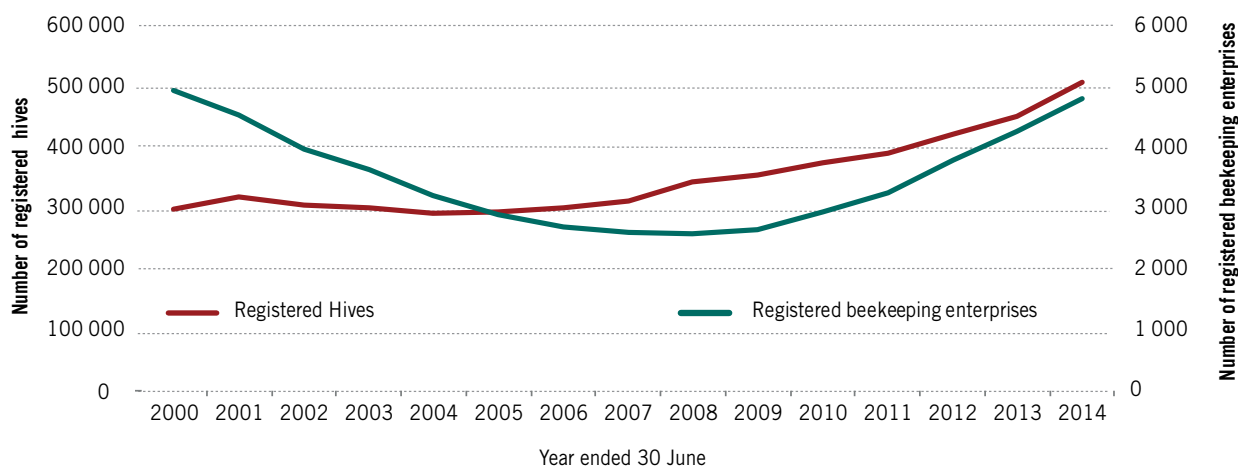
1 Registered beekeeping enterprises and hives under the National Pest Management Strategy for American Foulbrood.

2 Beekeepers with 1–50 hives are considered hobby beekeepers.

3 Beekeepers with greater than 350 hives are considered commercial beekeepers.

Source:ASUREQuality Limited.

**Figure 1: Registered beekeeping enterprises and hive numbers in New Zealand, 2000 to 2014**



**Notes**

1 Registered beekeepers and hives under the National Pest Management Strategy for American Foulbrood.

Varroa was discovered in hives in New Zealand in 2000.

Source:ASUREQuality Limited.

G3 flowering and the start of the Hayward variety for a hive to service both main crops.

Established beekeepers with access to Mānuka or Rewarewa areas continued to withdraw from providing kiwifruit pollination services, preferring to secure higher returns from honey.

Prices for kiwifruit pollination lifted in both the Bay of Plenty and Hawke’s Bay. Prices in these regions ranged from \$140 to \$210 plus GST per hive, depending on the level of service provided. Beekeepers charging \$175 to \$210 provide transport to, and placement within, the orchards and three or four 1–2 litre feeds of sugar syrup. Some beekeepers charge an additional premium for placing hives in covered orchards as they observe that hive strength suffers in these orchards. Beekeepers charging \$140 to \$160 per hive deliver hives into local orchards with little travel or into depot or ‘dump sites’. Contractors then shift hives into and out of the orchards from the dump sites and feed them while in the orchards. These costs are born by the pollination broker.

Average pollination fees per hive reported for pipfruit and stone fruit also increased in 2013/14 with the range of prices much narrower than previous years. The minimum price charged rose

60 percent on last season to more accurately reflect the costs associated with providing this service. Pollination prices for onions, berry fruit, avocados, canola seed crops and carrot seed crops remained similar to last year.

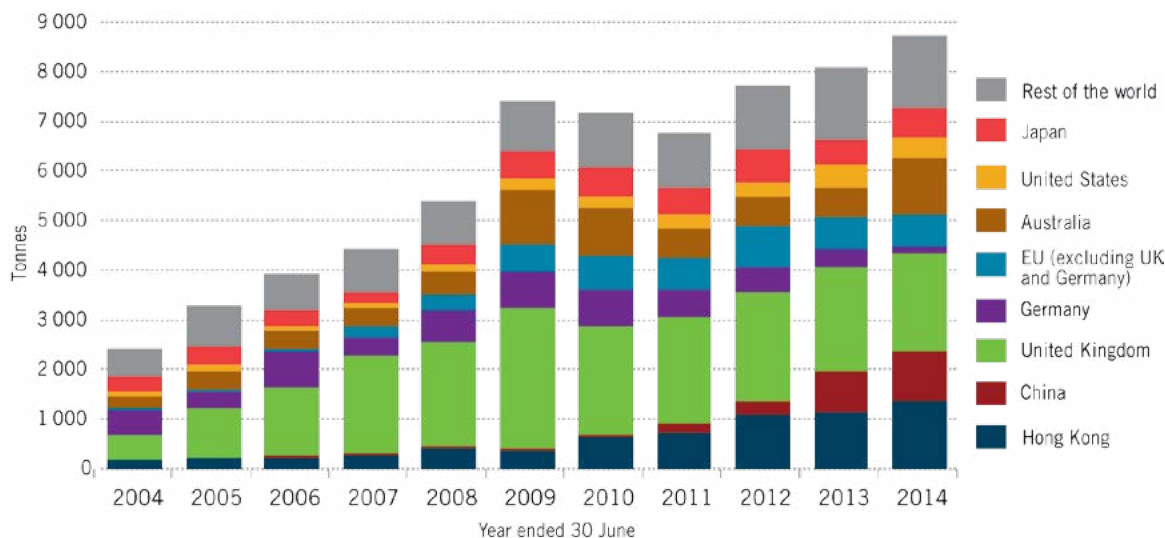
**Live bee exports**

Export of live bees to Canada continued to provide a good income stream for a number of North Island beekeepers this year. A package of bees generally consists of 1 kilogram of bees housed within a perforated cardboard tube or a cardboard and wire screen box about the size of a shoe box. The package may hold a supply of sugar syrup and a queen bee in a cage.

Demand for live bees from Canada remained strong this season despite the high New Zealand dollar. The strong demand followed winter losses in Canada and increased prices for honey. Canada imported 37 700 one-kilogram live bee packages from New Zealand, an increase of 16 percent (5200 packages) compared with last season (Figure 4).

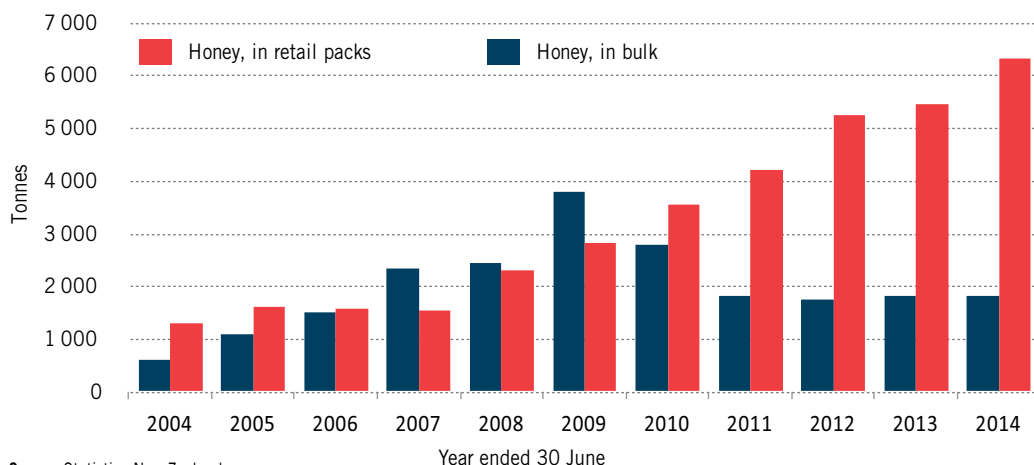
Queen bee exports also increased this year after a significant drop in 2012/13. Queen bees were exported to Canada and the UK.

**Figure 2: New Zealand honey exports by destination, 2004 to 2014**



Source: Statistics New Zealand.

**Figure 3: New Zealand honey exports by product type (extracted honey), 2000 to 2014**



Source: Statistics New Zealand.

As live bees can only be shipped from Auckland International Airport, most bees are produced by beekeepers who can deliver to collection centres in Hawke's Bay, Tauranga or Rotorua.

**Propolis and beeswax**

Prices paid to suppliers of dried and cleaned pollen in 2013/14 remained the same as the previous year at an average of \$40 to \$45 per kilogram.

Pollen production continues to fall. Only a few commercial producers now collect pollen as the best pollen production periods coincide with varroa treatments. Pollen traps cannot be activated when non-organic varroacides are being used. Some beekeepers have indicated an intention to re-look at pollen production or reactivate traps used previously, as a means of generating income now prices have improved in recent years.

Propolis is a resin collected by bees from some tree species and marketed as a dietary supplement. Beekeepers gather the propolis off special mats placed in hives or by scraping boxes and frames. The recovery rate of pure propolis from raw propolis is approximately 37 to 47 percent for early season propolis,

decreasing to 15 to 25 percent recovery when the nectar flow is on. Bees add more wax to the propolis when honey is being produced. Hive scrapings are reported to yield 30 to 40 percent pure propolis. Beekeepers reportedly received \$33 to \$100 per kilogram for the raw unprocessed product, with quotes of \$220 per kilogram noted for the pure product.

Export demand for beeswax free of varroacides remained strong this season as international supplies were limited. Light beeswax was in strong demand and prices increased 7 to 24 percent over last season (Table 5).

Most wax produced in New Zealand is used by local beekeepers to coat plastic foundation frames or is manufactured into wax foundation sheets that beekeepers put into wooden frames. The increase in the number of new hives during the year (around 55 000 new hives) meant less beeswax was exported in 2013/14 compared with the previous year. Despite this beeswax exports earned \$1.7 million in the year to 30 June 2014 (Table 4); the primary use is in the manufacture of cosmetics with the main destinations being the US, Germany and Japan.

**Figure 4: New Zealand export of live bees, 2007 to 2014**



**Notes**  
 1 All packages and the majority of the queen bees go to Canada. The exporting season is late January to May.  
**Source:**ASURE Quality Limited.

**Table 4: New Zealand exports of beeswax, 2007 to 2014**

Year ended 30 June	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Export volume (tonnes)	181	116	235	178	107	139	141	161	169	180	148
Export value (\$ million fob <sup>1</sup> )	1.33	0.92	1.76	1.40	1.01	1.36	1.21	1.45	1.59	1.85	1.71

**Note**  
 1 Free on board.  
**Source:** Statistics New Zealand.

Table 5: Returns for apiculture products, 2009 to 2014 as at 30 June 2014

Year ended 30 June	2009/10	2010/11	2011/12	2012/13	2013/14
<b>Bulk honey<sup>1</sup> (\$ per kg)</b>					
Light (clover type)	4.00-6.00	4.10-6.80	4.40-7.30	5.00-7.30	5.50-8.30
Light amber	3.90-4.50	4.00-5.80	4.30-6.00	5.50-8.50	4.50-8.00
Dark, including honeydew	4.00-5.00	4.50-5.00	5.00-6.00	4.50-8.50	5.50-10.00
Manuka	7.00-37.50	8.00-80.50	8.00-50.00	10.45-60.00	8.00-85.00
<b>Beeswax<sup>2</sup> (\$ per kg)</b>					
Light (residue free & EU compliant)	6.80-8.50	8.90-9.00	8.00-9.10	9.00-9.50	9.00-9.50
Light		7.00-7.80	7.00-7.50	7.50-8.50	8.00-10.50
Dark	6.00-6.50	6.00-6.80	5.00-7.50	6.50-7.80	6.50-7.80
<b>Pollen<sup>2</sup> (\$ per kg)</b>					
Not dried or cleaned	13.00-20.00	16.00-20.00	25.00-28.00	25.50-30.50	25.50-30.50
Cleaned and dried	30.00-36.00	32.00-38.00	35.00-40.00	40.00-45.00	40.00-45.00
<b>Pollination<sup>3</sup> (\$ per hive)</b>					
Pipfruit, stonefruit and berryfruit	52.50-96	60-120	60-120	60-120	96-120
Kiwifruit					
– Hawke's Bay	145-170	104-160	104-160	120-180	140-185
– Auckland	120-150	120-150	120-150	120-150	120-150
– Bay of Plenty	120-175	110-178	115-200	120-195	140-210
– Nelson	125-145	120-150	120-150	120-150	120-150
Canola and small seeds (carrots)	100-150	120-150	100-180	150-195	150-195
<b>Live Bees<sup>2</sup></b>					
Bulk bees for export (\$ per 1kg package)	25-26	26-27	27-28	27-29	27-32
Queen bees (per queen) local sales (\$)	25	25	28	33-37	33-37

**Notes**

All prices are GST exclusive.

1 Prices paid to beekeepers for bulk honey. The beekeepers supply the packaging (drums or intermediate bulk containers) and cover freight costs to the buyers premise.

2 Prices paid to beekeepers. The beekeepers cover the freight costs to the buyers premise.

3 Prices paid to beekeepers. The prices at the lower end of the range are for hives delivered to depot sites. At the upper end, prices include delivery into the orchard and sugar for 3–4 one-two litre feeds to stimulate the bees to collect pollen.

Source:ASUREQuality Limited.

## OPERATING COSTS (Table 6)

### Sugar

Sugar prices eased again this year with beekeepers paying between \$865 and \$1180 per tonne dry weight. Beekeepers are becoming increasingly aware of the commercial risk of feeding cane sugar to beehives following increased international testing for sugar adulteration. This has altered some beekeepers' management practices to ensure adequate honey reserves are in the hive at all times.

World sugar supplies remain in a surplus situation in 2013/14. This was driven by record harvests in Brazil and China and increased production from India. With sugar export prices now below the cost of production in many countries, commentators are predicting sugar farmers may switch to other crops which could result in a supply deficit in 2014/15.

### Honey drum prices

The price range for new or remanufactured honey drums ex-factory was larger this season with a marked increase in the

highest price paid (\$55 to \$100 each). In addition to the price of the drum, beekeepers often pay for freight costs and pallets. Beekeepers are electing to extract higher value honey into new or remanufactured drums rather than risk potential problems with recycled drums. However, packers are making their recycled drums available to extractors and these are typically used for lower value multi floral honeys.

### Labour

The average wage and the variation in wages paid to beekeeping staff increased slightly in 2013/14. This includes a significant jump in remuneration packages offered to managers. With the growth of commercial operations in both number and scale, beekeepers have increasingly found they need to value and reward good employees or they risk losing them to competitors. Remuneration packages can include mobile telephones, production bonuses, vehicles, extra holidays, or the use of extracting plant and machinery if employees also own their own hives.

**Table 6: Estimated expenditure for beekeeping operations<sup>1</sup>, 2013 and 2014**

Year ended 30 June		2012/13	2013/14	
<b>Labour</b>	Worker	\$ per hour	15-25	15-27
	Manager	\$ per hour	25-50	24-75
	Average working week	hours	45	45
	Average ratio of hives per fulltime equivalent (FTE) with varroa present in the hives	hives:FTE (pre-varroa)	350:1 (800:1)	350:1 (800:1)
<b>Fuel</b>	Fuel (dependant on world price and exchange rate)		Variable	
<b>Sugar</b>	Bulk sugar (variable depending on overseas prices and NZ exchange rate)	\$ per tonne	1 050-1150	865-1180
<b>Varroa treatment</b>	Varroa treatment (variable according to hive strength and product(s) used)	\$ per hive	22-25	25-28
	Varroa strips (applied at recommended rates, two treatments per year)	\$ per 1000 plus strips	24-25	25-28
<b>Protein supplements</b>	Hives may require 1–2 kilograms per year	\$ per 20 kilogram bag	162	162
<b>Contract extraction costs</b>	Extraction of manuka honey (costs more as the frames must be pricked first to release the honey)	\$ per frame	1.20-1.56	1.00-2.31
	Extraction of clover honey	\$ per frame	1.00-1.37	0.50 -1.34
<b>Hives</b>	Perfect condition hive, includes 2 brood boxes, floor, lid and 1 honey super, no bees, assembled and paraffin waxed	\$ per hive	251	210
	Reasonable condition hive, includes 2 brood boxes and 1-4 honey boxes with bees	\$ per hive	350-400	300-510
	4-5 Frame nucleus hive; new hives includes nuclei box	\$ per hive	100-230	160-230
	Repairs and maintenance, 7% of hive purchase price	\$ per hive	24-28	11-28
	Wax to coat plastic frames	\$ per kilogram	10-11	9-11
	Hive Strappers, used as required	\$ per unit	10-12	7-11
<b>Bees</b>	Queen bees	\$ per bee	33-37	33-37
	Select queens	\$ per bee	200	200
<b>Protective clothing</b>		\$ per suit	138	91-185
<b>Honey drums</b>	New or re-manufactured honey drum (holds approximately 300kg of honey)	\$ per hive	58-77	55-100
<b>Apiary rentals paid to landowners</b>		\$ per hive	30-180	40-180
		\$ per apiary		500-1000
	Manuka sites (rental is paid either as a per hive rate, percentage of crop when sold or a combination of both)	% of crop	10-30	7.5-30
		\$ per hive + % of crop	\$10-50 10-25%	\$25-60 10-38%
	Non-Manuka sites	grams per hive	Variable, often 500	
<b>Compliance costs</b>	Risk Management Programme (RMP) annual audit costs	\$ for processing RMP	up to 1300	up to 1300
		\$ for a storage RMP	up to 750	up to 750
	MPI Food Safety Authority annual fees	\$ if require export eligibility	577.5	577.5
		\$ if only processing for consumption within NZ	258	258
	Auditing of electronic certificates	\$ per eligible document	up to 65	up to 65
		\$ per month auditing 10% of eligibility declarations raised	65	65
	Tutin tests	\$ per sample (first sample)	125	90-125
		\$ per composite (up to 10 samples can be composited)	15	15
	American Foulbrood Strategy Levy	\$ per beekeeper	20	20
		\$ per apiary	14	14
<b>National Beekeepers' Association Membership (voluntary)</b>	Hobby beekeeper (1–10 hives)	\$ per membership	130	150
	Sideline to small commercial (11–250 hives)	\$ per membership	162-319	186-367
	Commercial operations (251–3001+hives)	\$ per membership	513-3000	590-3450
	Corporate membership	\$ per membership	274	315
	Beekeeping clubs	\$ per membership	243	200
<b>Beekeeping Industry Group membership</b>	Voluntary – affiliated with Federated Farmers	\$ per membership	104-520	120-598

**Note**

<sup>1</sup> Expenses are excluding GST.

Source:ASUREQuality Limited.

## INDUSTRY ISSUES AND DEVELOPMENTS

### PESTS AND DISEASES

The apiculture industry remains concerned about the biosecurity risk of imported honey. The Ministry for Primary Industries is undertaking research into the thermal stability of Israeli Acute Paralysis in honey. Results of this research are anticipated for late 2015. No changes to the importation of honey into New Zealand will be made until this research and the following documents have been completed: a new risk analysis, a new risk management proposal, and an import health standard covering importation of honey from all countries. These documents will be available for public consultation before any changes to the existing bee products standard are made. The previous import health standard for honey from Australia will be revoked as it is no longer fit for purpose.

New Zealand's Import Health Standards are continually reviewed in light of new information such as changing disease status in exporting countries, changes in international standards and latest research findings.

### NEONICOTINOID INSECTICIDES

Internationally attention has been given to the possible effect of neonicotinoid insecticides on bee health, and their possible role in colony collapse disorder. There is currently no evidence of the disorder in New Zealand, although these pesticides are commonly used here in agriculture and horticulture. Some research has suggested that even at very low levels, these pesticides, perhaps in combination with viruses or other stressors, may harm bees. The use of neonicotinoids is subject to controls imposed by the Environmental Protection Authority (EPA) and The Ministry for Primary Industries (MPI) Agricultural Compounds and Veterinary Medicines group.

From December 2013 the European Union placed a two year restriction on some field uses of three neonicotinoid pesticides, clothianidin, imidacloprid, and thiamethoxam, including seed treatment, soil application, and foliar treatment on plants and cereals that attract bees. Before the ban is reviewed, its effect on bee' health will be studied, which may clarify the effect on bees of neonicotinoids. There is little scientific evidence that neonicotinoid pesticides, when used according to label, are influencing bee health in New Zealand. Both MPI and the EPA are closely monitoring international developments on neonicotinoids and their potential impacts on bee health.

### VARROA AND MITICIDES

The parasitic varroa mite was first detected in the North Island in 2000 and while it reached the South Island in 2006 it has only recently reached the bottom of the South Island. It remains the single most detrimental pest of honey bees and causes many winter colony deaths. Without treatment, most colonies die within six months of being infected. By piercing the bee's cuticle, the mite introduces viruses such as the Deformed Wing Virus which usually results in colony death. Bees that are under stress from varroa are also more susceptible to infection of all kinds.

In many parts of the world, varroa mites have become resistant to the standard miticides. There is only anecdotal evidence that this is now occurring in New Zealand. This represents a major threat to the beekeeping industry, and finding new strategies to manage resistant mite populations will be critical. Research is being undertaken in New Zealand and overseas on varroa, and MPI's Sustainable Farming Fund project "Honeybee genetics for sustainability and pollination security" is undertaking research aimed at improving bee genetics and on mite resistance to miticides. Because there is no way to eradicate varroa, the challenge is to find new ways to manage the mite and its effects on bees.

### INTERNATIONAL CONCERNS ABOUT POLLINATOR DECLINE

Pollinator decline worldwide continues to be a significant issue. In response to this, the US government recently issued an edict requiring the establishment of a 'Pollinator Health Task Force'. This group includes representatives from a number of US government departments and is charged with the job of addressing pollinator decline. The edict also requires that a number of US government departments review their policies to ensure that pollinator health is considered in decision making processes.

A honey bee health coalition has been formed in the US with the aim of bringing together; beekeepers, growers, researchers, government agencies, agribusiness, and conservation groups. The goal is to address the 30 percent mortality rate of honey bee colonies in the US, which is double the accepted rate.

### BEE HEALTH

There is no evidence of pollinator decline in New Zealand, however data is limited and a proposed bee health survey is being worked on jointly by the beekeeping organisations and MPI. The MPI Sustainable Farming Fund funded 'Trees for Bees' project has published a list of bee forage plants, and actively encourages landowners to plant these species to improve overall honey bee nutrition.

Bees are sensitive to changes in the environment and it is difficult to get a comprehensive picture of their health. A simple count of hive numbers may not provide a true picture of the situation. In New Zealand hive numbers have increased by 73 percent over the last decade (Figure 1) despite reports of increasing unexplained losses internationally.

### MONOFLORAL STANDARDS AND LABEL CLAIMS

As the price of mānuka honey continues to rise, consumers and regulators both in the domestic and overseas markets are increasingly concerned that honey labelled as 'mānuka' is authentic and is true to label.

An additional concern is the number of claims made on honey sold as food, which are either prohibited therapeutic claims or health claims made in the absence of scientifically substantiated evidence.



Over the course of the year, the MPI worked closely with an industry working group and a science group to develop an interim labelling guide for mānuka honey. Further information can be found on the [MPI website](#).

In parallel to the development of the guide, MPI invested in a number of small-scale science projects to investigate ways to better define mānuka honey: *Science and characterising mānuka honey: Current and future science to support a definition.*

The outcomes of these projects indicated a need for validated test methods to support the development of monofloral and multifloral definitions. MPI will fund a two-year science programme to support this. MPI will work with the industry to ensure the outcomes of the science programme are fit for purpose, cost effective and achieve international acceptance.

Efforts to identify dihydroxyacetone (DHA) content as a marker of mānuka content in honey have resulted in further uncertainty as DHA does not correlate with the level of mānuka content in the honey.

## TUTIN LEVELS REVIEW

Food Standards Australia New Zealand (FSANZ) and MPI have worked closely to review tutin levels towards setting a permanent maximum tutin level in the Food Standards Code. A new maximum level for tutin in honey of 0.7 mg/kg for all honey, including comb honey, was introduced into the Australia New Zealand Food Standards Code on 15 January 2015. The new level will come into effect in New Zealand on 12 March 2015.

## BEE INDUSTRY ORGANISATIONS

In 2014 the National Bee Association Executive Council and the Federated Farmers Bee Industry Group Executive Committee agreed to work together to form a new advisory body that combines the interests of both groups in representing the industry to government. This new body is called the Beekeeping Industry Advisory Council (BIAC) and is committed to developing a national body to provide a unified voice for beekeeping, and address the issues affecting the industry more effectively.

## CURRENT MPI-FUNDED APICULTURE PROJECTS

Table 7: MPI-Funded apiculture projects

Primary Growth Partnership	<p><b>High-performance Manuka Plantations (in progress)</b></p> <p>The PGP Programme led by Manuka Research Partnership (NZ) Limited and Comvita Limited aims to move the industry from wild harvest to science-based farming of mānuka plantations.</p> <p><b>More information:</b> <a href="http://www.mpi.govt.nz/funding-and-programmes/primary-growth-partnership/primary-growth-partnership-programmes/high-performance-manuka-plantations/">http://www.mpi.govt.nz/funding-and-programmes/primary-growth-partnership/primary-growth-partnership-programmes/high-performance-manuka-plantations/</a></p>
	<p><b>A new approach to a sustainable bee population (in progress)</b></p> <p>This project aims to develop an environmentally sustainable alternative to chemical treatments for Varroa that will make the bee population healthier and cheaper to maintain, and provide pollination security for all bee-dependent agricultural sectors. Pollination security is crucial for primary production sectors that contribute approximately \$5.1 billion p.a. to the NZ economy.</p> <p><b>More information:</b> <a href="http://archive.mpi.govt.nz/applications/sustainable-farming-fund-search">http://archive.mpi.govt.nz/applications/sustainable-farming-fund-search</a></p>
Sustainable Farming Fund	<p><b>Trees for Bees: Producing abundant bee pollinators for sustainable farming (in progress)</b></p> <p>This project aims to increase the number of strong, healthy honey bees to ensure pollination services for agricultural crops. In many areas, pollen and nectar sources are being removed leading to poor nutrition for bees. They become weakened, malnourished and sometimes starving. To restore flowers for bees we are installing demonstration plantations of trees and shrubs to show how to supply a steady source of high-protein pollen to support bee colonies. The result will be more bees for pollination services leading to increased crop and pasture yields.</p> <p><b>More information:</b> <a href="http://www.treesforbeesnz.org/research/project-4-producing-abundant-bee-pollinators-for-sustainable-farming">www.treesforbeesnz.org/research/project-4-producing-abundant-bee-pollinators-for-sustainable-farming</a></p>
	<p><b>Developing a bee industry in Te Riu O Waiapu: A Project Management Role (in progress)</b></p> <p>The project aims to address a core and critical phase of a long-term project and vision for a substantial beekeeping and whanau-based bee product industry for the Waiapu, a whanau-based community in the East Cape area.</p> <p><b>More information:</b> <a href="http://maxa.maf.govt.nz/sff/about-projects/search/M12-139/index.htm">http://maxa.maf.govt.nz/sff/about-projects/search/M12-139/index.htm</a></p>
	<p><b>Honeybee genetics for sustainability and pollination security (in progress)</b></p> <p>The project aims to deliver practical solutions that will increase the sustainability of beekeeping, and its effectiveness in servicing NZ's primary industries. We will apply new genetic assays to identify at-risk bee populations and provide breeding strategies to improve their genetic resilience. We will also trial a novel technique to identify bees with improved pollination performance and determine whether this trait can be selected for within breeding programmes.</p> <p><b>More information:</b> <a href="http://maxa.maf.govt.nz/sff/about-projects/search/12-017/index.htm">http://maxa.maf.govt.nz/sff/about-projects/search/12-017/index.htm</a></p>
	<p><b>A collaborative industry approach to reduce the threat of pyrrolizidine alkaloids in honey (in progress)</b></p> <p>The Bee Products Standards Council (BPSC) is undertaking a significant research project to ensure that New Zealand honey remains a safe food.</p> <p><b>More information:</b> <a href="http://maxa.maf.govt.nz/sff/about-projects/search/12-018/index.htm">http://maxa.maf.govt.nz/sff/about-projects/search/12-018/index.htm</a></p>
	<p><b>Trees for Bees: Flowers for healthy bees in times of pollen dearth (recently finished)</b></p> <p>The project aims to improve honey bee health by increasing the availability of nutritious pollen sources by: identifying good Bee Plants that have protein-rich pollen and flower at the right times especially when there is a pollen shortage; trialling the use of good Bee Plants that are the most practical plants for farms; and encouraging farmers to plant good Bee Plants to protect and support bees.</p> <p><b>More information:</b> <a href="http://www.treesforbeesnz.org/research/healthy-bees">http://www.treesforbeesnz.org/research/healthy-bees</a></p>

## INFORMATION ABOUT THE COMMENTARY

This commentary was developed from information gathered through surveys completed by beekeepers, honey packers and exporters and augmented with a review of export documents, the apiary database and published reports.

Honey production, price and expenses figures are based on a survey of a range of beekeeping enterprises that account for 40 to 50 percent of registered hives in New Zealand.

The survey is administered byASUREQuality during their annual Risk Management Programme audits and/or hive audits.

Surveys collect and record information based on the beekeeper enterprise location, not apiary (or hive) locations.

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