Ministry for Primary Industries
Manatū Ahu Matua

Apiculture

MINISTRY FOR PRIMARY INDUSTRIES 2020 APICULTURE MONITORING PROGRAMME

New Zealand Government

SUMMARY

- Honey production in New Zealand for the 2019/20 season was estimated at 27,000 tonnes, an increase of 4000 tonnes (17 percent) on the prior year, driven by favourable weather conditions in most regions.
- Good mānuka honey crops boosted hive yields in the North Island to an average of 31.1 kilograms per hive (up 39 percent on last season). Hive yields in the South Island were close to their 10-year average of 32 kilograms per hive.
- Wintering hive numbers fell five percent to 869,056 hives in June 2020, the first recorded decline in 15 years. Possible contributing factors include administrative changes to the levy calculation for the American Foulbrood Pest Management Plan from an apiary-based calculation or fee to a per hive fee, consolidation of apiaries, and a reduction in the number of semi-commercial and commercial beekeeping enterprises (more than 50 hives).
- The number of beekeepers with more than 50 hives declined five percent to 1271 beekeeping enterprises, whilst beekeeper numbers continued to increase in the hobbyist category. Registered "mega commercial" beekeeping enterprises (more than 3000 hives) fell from 49 to 45. Overall, the number of registered beekeeping enterprises increased by three percent to 9585.
- Average honey prices paid to New Zealand beekeepers in 2019/20 (often referred to as bulk honey prices) continued to fall for most honey types, apart from monofloral mānuka honey, due to high stocks.
- The value of New Zealand's honey exports (pure honey[1]) increased by 20 percent in 2019/20 to $425 million, driven by a 28 percent increase in export volumes to 10,288 tonnes. Average export prices declined 6 percent despite a weaker NZ dollar over much of this period.
- Mānuka honey accounted for 76 percent of New Zealand's honey export volume and 88 percent of export revenue in 2019/20. The average export price for monofloral mānuka honey was $55.36 per kilogram, compared with $32.44 and $22.50 per kilogram for multifloral mānuka and non-mānuka honeys, respectively.
- Beekeeping was approved as an essential service under the New Zealand response to the COVID-19 pandemic. However, movement and border controls impacted operational efficiency and access to air and sea freight for a period. New Zealand honey exporters attribute the surge in honey exports since February 2020 to an increase in international consumer interest in honey following the outbreak and global spread of COVID-19.

1 Pure honey exports include honey sold in bulk and retail packs, and as comb honey and honeydew honey only. New Zealand honey is also exported as an ingredient in other food and non-food products such as bakery products, cosmetics, health supplements and medical products.

TABLE 1: KEY PARAMETERS OF THE NEW ZEALAND APICULTURE INDUSTRY, 2014 TO 2020

YEAR ENDED 30 JUNE		2014	2015	2016	2017	2018	2019	2020
Beekeeper and hive numbers								
Number of registered beekeeping enterprises[1]		4,814	5,551	6,735	7,814	8,552	9,282	9,585
Number of registered bee hives[1]		507,247	575,872	684,046	795,578	881,185	918,026	869,056
Honey production								
New Zealand annual honey production	Tonnes	17,610	19,710	19,885	14,855	20,000	23,000	27,000
Honey yield per hive	kg/hive	34.7	34.2	29.1	18.7	22.7	25.1	31.1
Honey prices[2]								
Bulk honey price range for light clover honey	NZ$/kg	5.50–8.30	7.00–10.75	9.50–13.00	10.00–14.00	8.50–12.00	5.00–9.25	2.50–5.50
Bulk honey price range for mānuka honey[3]	NZ$/kg	8.00–85.00	9.50–116.50	12.00–148.00	10.80–127.00	12.00–135.00	5.00–125.00	4.50–130.00
Honey exports								
Honey export volume	Tonnes	8,702	9,046	8,831	8,450	8,692	8,065	10,288
Honey export value (at fob[4])	Million NZ$	187	233	315	329	348	355	425
Honey export price (at fob[4])	NZ$/kg	21.45	25.77	35.62	38.92	40.04	44.02	41.28

Notes

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

2 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. The honey prices reported in this report for each season cover the period from July to June.

3 Mānuka honey as identified by the beekeeper/supplier. The range in price is influenced by the rating on industry grading systems such as UMF®, MGO™ or equivalent. The Ministry for Primary Industries' (MPI) mānuka honey definition was finalised in December 2017.

4 fob = free on board.

Source: AsureQuality Limited and Statistics New Zealand

PRODUCTION AND FINANCIAL PERFORMANCE OF APICULTURE IN 2019/20

Favourable climatic conditions resulted in an increased mānuka honey crop in almost every mānuka growing region. Whilst prices for monofloral mānuka honey have remained relatively stable, high stocks of other honey types have resulted in lower prices. Some prices on offer in 2019/20 were below the cost of production for many operators.

In addition to lower honey prices, demand for propolis[2] from New Zealand beekeepers in 2019/20 reduced significantly due to the main buyers having adequate stocks on hand. Prices for beeswax dropped 30–35 percent compared with the prices paid in 2018/19.

Income from the export of live bees was cut short mid-season with the cancellation of most international flights in response to the COVID-19 pandemic.

The profitability of most beekeeping enterprises did not improve in 2019/20, and for some, it was lower than in recent years. As a result, commercial beekeeping enterprises are consolidating their apiaries to those that are more profitable. More beekeepers have sought work outside of their beekeeping businesses to supplement their income, and/or explored ways to add value to their honey through direct marketing and retail sales. Some beekeepers have exited the industry.

COVID-19

Apiculture industry personnel were classified as essential service workers during New Zealand's lockdown period in response to COVID-19, and were able to continue with their beekeeping activities, with minimal overall impact.

Bee Product Risk Management Programme (RMP) operators were challenged by changes to audit processes, reduced staff on site for packing, and needing double shifts to get the same volume processed as before COVID-19 movement controls. Other complications at the time included the sudden loss of some export freight services, increased costs for available air and sea freight, repeated rescheduling, and competition to secure shipping space. The cancellation of international passenger flights to Vancouver halted live bee exports mid-season.

Traditional industry conferences and field days were cancelled, though industry leaders worked hard to keep members informed via webinars on current topics, and other online training resources.

Exporters are attributing much of the surge in New Zealand honey exports since February 2020 to increased consumer interest in honey following the outbreak of COVID-19.

HONEY PRODUCTION

Favourable climatic conditions for mānuka led to a record honey crop in 2019/20

The 2019/20 season produced an estimated honey crop of 27,000 tonnes, an increase of 4000 tonnes (up 17 percent) on the prior year, and a new record (Tables 1 and 2). The increase in production, notwithstanding a five percent decrease in hive numbers, was attributed to favourable weather conditions for flowering and bee activity. Most beekeeping areas achieved an average (approximately 30 kilograms per hive) to above-average hive yield with very few under-performing regions.

The mānuka yield was particularly good, with some beekeepers estimating it as their largest mānuka honey crop in recent years. On balance, more positive than negative feedback was received from beekeepers regarding the outcome of the mānuka honey definition test for the 2020 mānuka honey crop, signalling a higher ratio of monofloral to multifloral mānuka honey, compared with recent years.

2 Propolis is a resin collected by bees from some tree species and marketed as a dietary supplement.

TABLE 2: NEW ZEALAND HONEY CROP ESTIMATES, 2011 TO 2020

YEAR ENDED 30 JUNE	2011 (tonnes)	2012 (tonnes)	2013 (tonnes)	2014 (tonnes)	2015 (tonnes)	2016 (tonnes)	2017 (tonnes)	2018 (tonnes)	2019 (tonnes)	2020 (tonnes)	10-year average (tonnes)
North Island total	6,790	5,595	11,770	13,210	14,730	14,365	9,245	13,500	15,500	20,500	12,521
North Island yield/hive (kg)	26.4	19.5	37.7	36.4	35.0	27.7	15.2	20.1	22.3	31.1	27.1
South Island total	2,660	4,790	6,055	4,400	4,980	5,520	5,610	6,500	7,500	6,500	5,452
South Island yield/hive (kg)	20.0	35.2	43.3	30.5	32.1	33.3	30.1	31.2	33.4	31.1	32.0
New Zealand total	9,450	10,385	17,825	17,610	19,710	19,885	14,855	20,000	23,000	27,000	17,972
New Zealand yield/hive (kg)	24.2	24.6	39.4	34.7	34.2	29.1	18.7	22.7	25.1	31.1	28.4

Notes

With the increasing trend of beekeepers moving hives long distances to harvest mānuka, in particular in the North Island, it is no longer feasible to provide a regional breakdown of estimates of honey production. Therefore, honey crop estimates are reported for the North Island and South Island only.

See *Information about the Report* for details on how the annual honey crop is estimated.

Source: AsureQuality Limited.

Northland, Waikato, Bay of Plenty, Coromandel, Gisborne, the top of the South and North Canterbury which experienced droughts in 2019/20, reported strong honey crops. However, the drought did impact late nectar flows in pasture crops, with beekeepers on the east coast of the North Island reporting that little honey was collected after March 2020. Otago and Southland, which had some areas impacted by heavy rain and flooding in summer 2020, did not report the same positive results as other regions for the 2019/20 season.

Drop in the number of registered hives

Wintering hive numbers peaked at 918,026 hives in June 2019 and dropped five percent (48,970 hives) to 869,056 hives at 30 June 2020 (Figure 1 and Table 3). The reduction in the number of registered hives occurred in both the North Island and South Island, with possible contributing factors including:

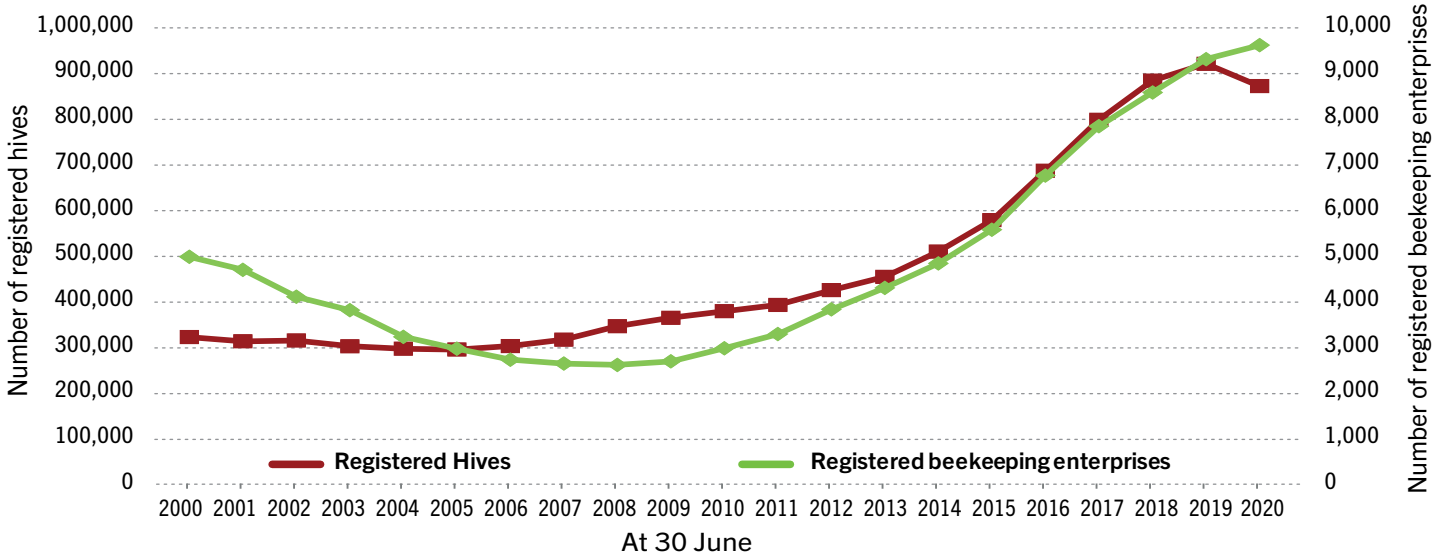
- The Management Agency for the American Foulbrood Pest Management Plan altered the levy structure from an apiary-based calculation or fee, to a per hive fee, likely prompting beekeepers to undertake more detailed records.
- A reduction in the number of beekeeping businesses with more than 50 hives, compared with last year.
- Beekeepers consolidating their apiaries to those that are more profitable.

Whilst the number of registered beekeeping enterprises with more than 50 hives declined five percent to 1271 beekeeping enterprises, beekeeper numbers continued to increase in the hobbyist category (1 to 50 hives). A total net increase of 303 beekeeping enterprises[3] (up three percent) was recorded for the 2019/20 season. There were 45 registered "mega commercial" beekeeping enterprises (more than 3000 hives) in New Zealand as at 30 June 2020, four less than the prior year (Tables 3 and 4).

Apiary numbers increased in the North Island but dropped in the South Island with a net increase of 1015 apiaries registered over the 2019/20 season (Table 3). Apiary density continues to be identified as a concern for beekeepers, landowners and other stakeholders although anecdotal reports indicated that this has been less of an issue in the 2019/20 season, likely due to favourable climatic conditions delivering average to above-average honey yields in most regions.

3 Some larger beekeeping businesses choose to operate different parts of their business (usually in separate geographical areas) under separate beekeeper registration numbers. These can also be structured into separate companies.

FIGURE 1: REGISTERED BEEKEEPING ENTERPRISES AND HIVE NUMBERS IN NEW ZEALAND[1], 2000 TO 2020



Notes

1 Registered beekeeping enterprises and hives under the National American Foulbrood Pest Management Plan. Data from 2013 to 2020 is at 30 June. Data for prior years is at early May to mid-June. Only minor differences in hive numbers are expected over the months of May and June.

Varroa was discovered in hives in New Zealand in 2000.

Source: AsureQuality Limited.

TABLE 3: NEW ZEALAND BEEKEEPING ENTERPRISE, APIARY AND HIVE STATISTICS[1], AS AT 30 JUNE 2020

REGION	Beekeeping enterprises	Apiaries[2]	Hives[2]
Northland/Auckland/Hauraki Plains	2,466	11,612	146,403
Waikato/King Country/Taupō	955	5,605	80,357
Coromandel/Bay of Plenty/Rotorua/Poverty Bay	1,164	8,797	155,871
Hawke's Bay/Wairarapa/Manawatū/Taranaki/Wellington	2,233	18,126	277,321
North Island total	**6,818**	**44,140**	**659,952**
Marlborough/Nelson/West Coast	683	5,108	68,356
Canterbury/Kaikōura	1,224	6,748	83,969
Otago/Southland	860	4,712	56,779
South Island total	**2,767**	**16,568**	**209,104**
New Zealand total	**9,585**	**60,708**	**869,056**

Notes
1 Registered beekeeping enterprises, apiaries and hives under the National American Foulbrood Pest Management Plan.
2 From 2020, apiary and hive numbers reported by region reflect the actual number of hives and apiaries physically located in the region at their wintering sites, based on GIS data. Previously, apiary and hive data reflected the number of apiaries and hives owned by registered beekeepers in each region, regardless of where the apiaries were located. The regional location of hives is based on the location of the apiaries.
Source: AsureQuality Limited.

TABLE 4: SUMMARY OF BEEKEEPING ENTERPRISES[1] BY HIVE NUMBER, 2011 TO 2020

AS AT 30 JUNE	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
5 hives or less	2,044	2,463	2,828	3,162	3,639	4,330	4,873	5,262	5,799	6,100
6 to 50[2] hives	678	774	843	964	1,109	1,446	1,781	2,017	2,151	2,214
51 to 500[3] hives	336	351	379	443	530	662	833	911	952	920
501 to 1,000 hives	109	115	122	124	129	135	155	179	192	181
1,001 to 3,000 hives	84	87	90	92	111	126	129	134	139	125
>3,000[4] hives	16	16	17	29	33	36	43	49	49	45
Total	**3,267**	**3,806**	**4,279**	**4,814**	**5,551**	**6,735**	**7,814**	**8,552**	**9,282**	**9,585**

Notes
1 Registered beekeeping enterprises and hives under the National American Foulbrood Pest Management Plan.
2 Beekeepers with 1–50 hives are considered hobby beekeepers.
3 Beekeepers with greater than 350 hives are considered commercial beekeepers.
4 Data for >3,000 hives category between 2010 and 2013 is as at 31 March as data at 30 June is not available. Data for 2014 to 2020 is at 30 June.
Source: AsureQuality Limited.

HONEY PRICES

Honey prices declined further in 2019/20

The range of honey prices paid to New Zealand beekeepers in 2019/20 (often referred to as bulk honey prices) reduced significantly for most honey types. Average prices for non-mānuka honeys dropped by 30 to 50 percent (Table 5). Prices offered for monofloral mānuka honey trended towards the lower end of the price range. Some honey buyers implemented more stringent specifications for the purchase of monofloral mānuka honey at the top end of the price range, for example no detectable C4 sugars and very low levels of 5-hydroxymethylfurfural (HMF).

With the record honey crop in 2019/20, coupled with high production in the previous two seasons, high stocks of honey has become a significant issue for the industry. The rise in honey production coincided with the implementation of the mānuka honey definition in February 2018. Whilst demand for monofloral mānuka honey has remained strong, demand for multifloral mānuka and non-mānuka honeys has declined. With higher costs of production relative to honey producers in some other countries, New Zealand has struggled to compete in export markets, apart from in the niche monofloral mānuka honey category. Increasing honey stocks have forced some beekeepers to accept significantly lower prices than in previous years, particularly for non-mānuka honeys.

Export volumes increased in 2020 with expansion both into existing markets and new emerging markets (see section on Honey Exports). Some individual beekeeping businesses are exploring ways to add value to their honey through direct marketing and retail sales. In addition, a much higher proportion of the 2019/20 honey crop is likely to be monofloral mānuka honey, which both attracts a premium price for beekeepers, and is in higher demand on the international market.

TABLE 5: PRICES/RETURNS FOR APICULTURE PRODUCTS, 2014 TO 2020

YEAR ENDED 30 JUNE	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/2020
Bulk honey[1] ($ per kg)							
Light (clover type)	5.50–8.30	7.00–10.75	9.50–13.00	10.00–14.00	8.50–12.00	5.00–9.25	2.50–5.50
Light amber	4.50–8.00	7.00–9.00	9.00–11.50	6.50–13.00	7.50–10.00	4.50–9.25	2.50–4.50
Dark, including honeydew	5.50–10.00	7.00–12.50	8.00–14.50	8.00–16.00	5.00–8.50	3.50–6.00	2.50–4.00
Mānuka[2]	8.00–85.00	9.50–116.50	12.00–148.00	10.80–127.00	12.00–135.00	5.00– 125.00	4.50–130.00
Beeswax[3] ($ per kg)							
Light	8.00–10.50	9.00–12.50	11.00–15.00	12.00–17.00	16.00–17.00	10.00–17.00	7.00–11.00
Dark	6.50–7.80	8.00–10.00	9.00–10.00	12.00–17.00	15.00–16.00	12.00–20.00	…
Pollen[3] ($ per kg)							
Not dried or cleaned	16.00–30.50	16.00–27.00	16.00–25.00	16.00–25.00	16.00–25.00	16.00–25.00	16.00–30.00
Cleaned and dried	40.00–45.00	40.00–46.00	…	…	…	…	48.00–50.00
Pollination[4] ($ per hive)							
Pipfruit, stonefruit and berryfruit	60–120	60–140	60–150	70–180	80–200	95–250	80–250
Kiwifruit							
– Hawke's Bay	120–185	120–180	165–300	200–300	190–300	190–300	200–300
– Auckland	120–150	120–150	150–400	150–400	180–400	180–400	200–400
– Bay of Plenty	140–210	142–195	145–400	150–400	175–400	185–400	195–400
– Nelson	120–150	115–195	178–190	130–190	150–200	150–200	150–200
Canola and small seeds (carrots)	150–195	150–195	130–200	200–250	200–250	100–250	100–250
Live Bees[3]							
Bulk bees for export ($ per 1kg package)	27–32	28–32	31–35	31–35	31–35	32	28–34
Queen bees (per queen) local sales ($)	33–37	30–37	35–60	14–80[5]	20–80[5]	14–75[5]	40–75[5]

Notes

… Data not available.

All prices are exclusive of GST.

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 Mānuka honey as identified by the beekeeper/supplier. The range in price is influenced by the rating on industry grading systems such as UMF®, MGO™ or equivalent. The Ministry for Primary Industries' (MPI) definition for monofloral and multifloral mānuka honey was finalised in December 2017.

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

4 Prices paid to beekeepers. Prices at the lower end of the range are for hives delivered to depot sites. Upper end prices include delivery into the orchard and sugar for 3 to 4 one-two litre feeds to stimulate the bees to collect pollen. Higher prices (upper end of the range) were also demanded for hives placed in orchards under netting, in particular kiwifruit and blueberry orchards. Some hives provided to blueberry orchards are cycled in and out every two weeks.

5 Queen bee prices includes the price of virgin queens in the price range.

Source: AsureQuality Limited.

OTHER REVENUE SOURCES

Increasing demand for pollination services

Demand for pollination services continues to increase with ongoing expansion in the planted area of several horticulture crops including avocado, kiwifruit, apples, cherries and blueberries.

Beekeepers involved in crop pollination largely held pollination prices steady in 2019/20, though many increased their total revenue from this activity due to increased demand for pollination hives. The oversupply of hives being offered for crop pollination as predicted last season, did not eventuate, as seen in the retention of stable pollination prices (Table 5).

Live bee exports affected by closed borders

Live bee export shipments started well in February 2020 with several early shipments sent to Canada. However, the exportation of bees to Canada relies exclusively on the Air New Zealand passenger service from Auckland to Vancouver. With the closure of New Zealand's borders in March 2020 as part of the COVID-19 response, this passenger service ceased on 30 March, only one month into the season which normally concludes in early May. This effectively terminated the live bee export season, although a small number of shipments were possible on repatriation flights. A total of 9804 one-kilogram packages were sent to Canada in the autumn of 2020 (Canadian spring), less than half that sent in the prior year (Figure 2). The scarcity of flights to Canada resulted in exporters choosing to send queen bees over worker bees, with 9628 queen bees leaving the country, numbers not seen since 2011.

Bumblebee shipments to the Maldives occur year-round and are mainly used to pollinate crops grown in greenhouses. These shipments also rely on a passenger air service which ended when New Zealand closed its borders. This cessation resulted in no exports for the last three months of the season and only 3600 individual bumblebees were exported, down 25 percent on the prior year.

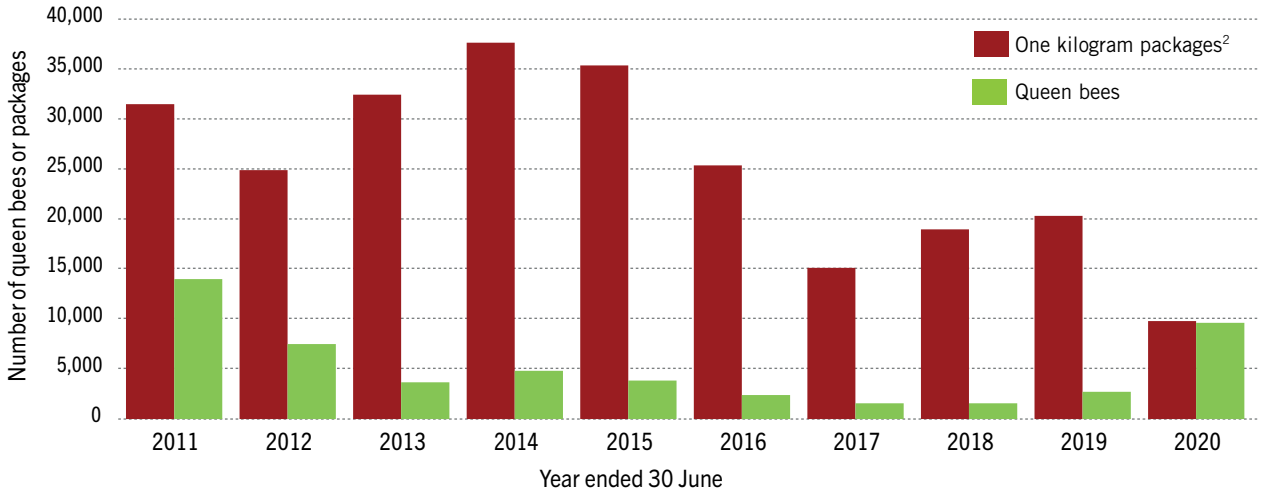
Propolis

Demand for propolis from New Zealand sources fell sharply this season due to the main buyers having adequate stocks on hand. Those beekeepers who did sell propolis reported receiving similar prices to last season for the raw unprocessed product, with quotes of $360 to $390 per kilogram for the pure product.

Royal jelly and beeswax

The market for royal jelly continues to be oversupplied, so some processing facilities chose not to operate for a second consecutive season.

FIGURE 2: NEW ZEALAND EXPORTS OF LIVE BEES[1], 2011 TO 2020



Notes

1 Honey bees only. A small but increasing number of bumblebees are also exported.

2 A package of bees generally consists of 1 kilogram of bees housed within a ventilated 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. All packages and the majority of the queen bees go to Canada. The exporting season is late February to May.

Source: AsureQuality Limited.

Beeswax export volumes in the year to 30 June 2020 increased from 18 to 23 tonnes. Export prices for beeswax more than halved in 2019/20 to $10.00, down from $23.15 in the prior year (Table 6).

The practice of pricking, instead of uncapping[4], has resulted in reduced beeswax recovery during the honey extraction process. The labour and machinery required is not considered worth the investment by some at current prices. Some beekeepers may be using excess wax for their own operations.

Sale of bee colonies and hives to other beekeepers

The price for two box hives held steady throughout 2019/20 at $500 to $800, although sale numbers were down on previous years. Beekeepers are currently paying $200 to $400 for nucleus colonies (nucs) and $355 to $675 for singles (Table 7). Commercial beekeepers buying larger numbers would have bought at the lower end of the price ranges.

4 Modern honey extraction techniques tend to use honey prickers/looseners to assist with the extraction of thixotropic honeys such as mānuka honey. The addition of honey prickers into the extraction process eliminates the need for uncapping machines, reducing the amount of beeswax recovered.

TABLE 6: NEW ZEALAND EXPORTS OF BEESWAX, 2011 TO 2020

YEAR ENDED 30 JUNE	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Export volume (tonnes)	160	169	180	148	118	27	24	7	18	23
Export value ($ million fob[1])	1.45	1.59	1.85	1.71	1.57	0.46	0.51	0.14	0.41	0.23
Export price ($ per kilogram fob)	9.01	9.40	10.29	11.55	13.23	16.74	20.71	21.21	23.15	10.00

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

HONEY EXPORTS

Significant lift in New Zealand honey exports from February 2020

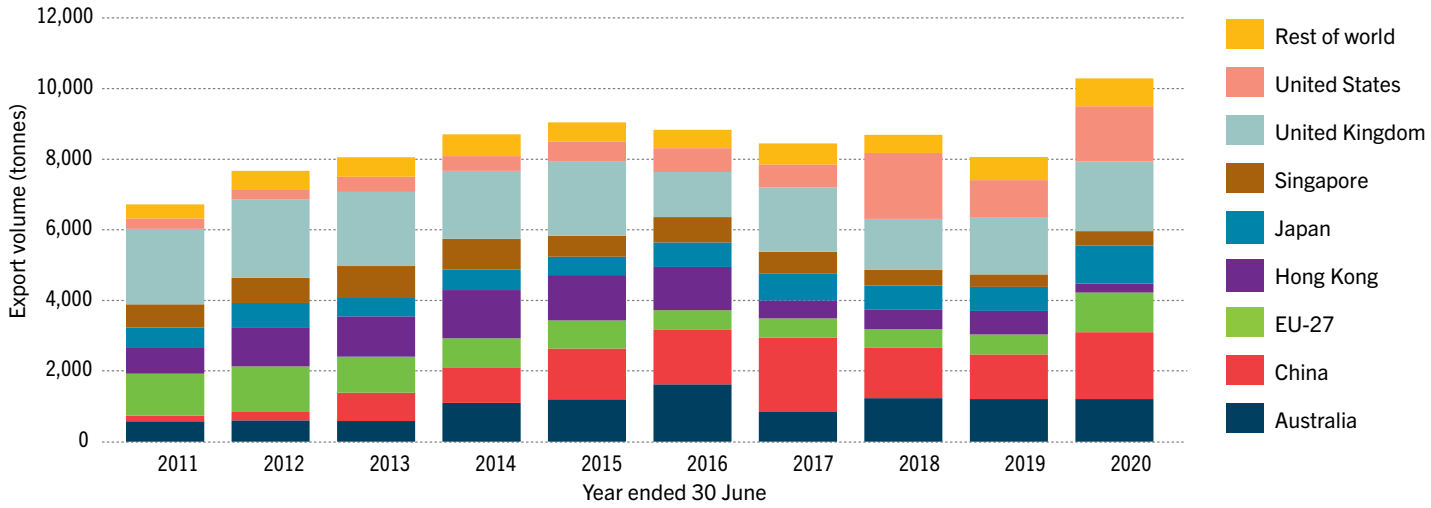
The value of New Zealand's honey exports (pure honey[5]) increased by 20 percent in 2019/20 to $425 million, driven by a 28 percent increase in export volumes to 10,288 tonnes. Average export prices declined 6 percent despite a weaker NZ dollar over much of this period, attributed mainly to a reduction in prices for non-mānuka honey (Table 1 and Figure 3). There was a surge in honey exports in February 2020 following the outbreak of COVID-19, and this trend has continued for several months (Figure 4).

For a second consecutive year, the United Kingdom and China were the top two export destinations for New Zealand honey exports (Figure 3). Export volumes to the United Kingdom increased 22 percent to 1973 tonnes in the year to June 2020, while exports to China increased 50 percent to 1898 tonnes. Export volumes were also up in other main markets including the United States, Japan and Germany. In contrast, the amount of honey exported to Australia was similar to recent years at around 1200 tonnes.

Honey exporters are working to develop new markets for New Zealand honey, in line with the industry's strategy for market diversification and growth. The Middle East is one of the regions that has experienced growth, with demand from Saudi Arabia increasing in recent years. Exports to Saudi Arabia grew to 293 tonnes in 2020, up from 163 tonnes in 2019 and 77 tonnes in 2018. Demand is also increasing from Kuwait and the United Arab Emirates. Alongside the development of these new markets, exporters have also been growing internet sales.

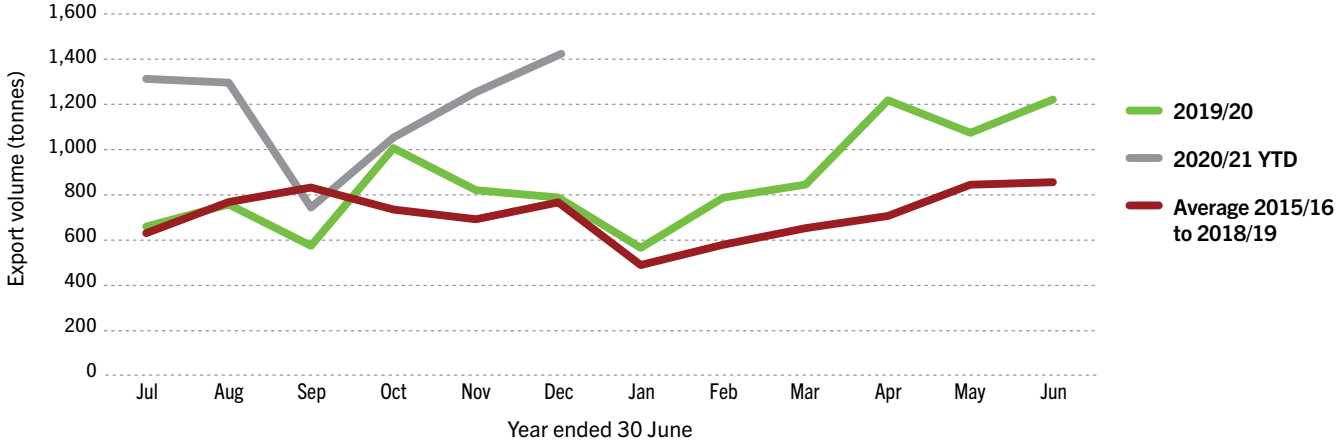
5 Pure honey exports include honey sold in bulk and retail packs, and as comb honey and honeydew honey only. New Zealand honey is also exported as an ingredient in other food and non-food products such as bakery products, cosmetics, health supplements and medical products.

FIGURE 3: NEW ZEALAND HONEY EXPORTS BY DESTINATION, 2011 TO 2020



Source: Statistics New Zealand.

FIGURE 4: NEW ZEALAND HONEY EXPORTS BY MONTH, 2015/16 TO 2020/21 YTD



Source: Statistics New Zealand.

New Zealand honey exports in 2019/20 by floral type

Export codes were introduced from 1 July 2018 to capture honey exports by three floral types: monofloral mānuka, multifloral mānuka and non-mānuka honeys. Comb honey and honeydew honey have had separate export codes for several years, and these codes have been retained. Industry has been provided with assistance to implement these codes so the reliability of honey trade data by floral type has improved, particularly since July 2019.

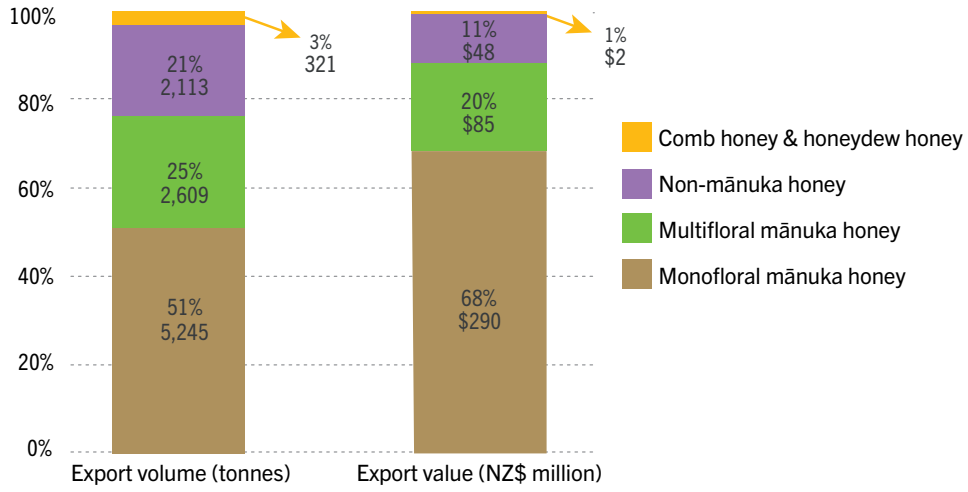
Mānuka honey (monofloral and multifloral) accounted for 76 percent of New Zealand's honey export volume and 88 percent of export revenue in 2019/20 (Figure 5).

The United States was the top export market for monofloral mānuka honey in the year ended June 2020, followed by China and the United Kingdom (Figure 6). The top markets for multifloral mānuka honey were the United Kingdom, China and Australia. Combined, China and the United Kingdom received 44 percent of the non-mānuka honey exported in the year to June 2020.

The average export price for all honey for the year ended June 2020 was $41.28 per kilogram. Prices by floral type vary considerably (Figure 7). The average export prices (NZ$ per kilogram) for honey by floral type were:

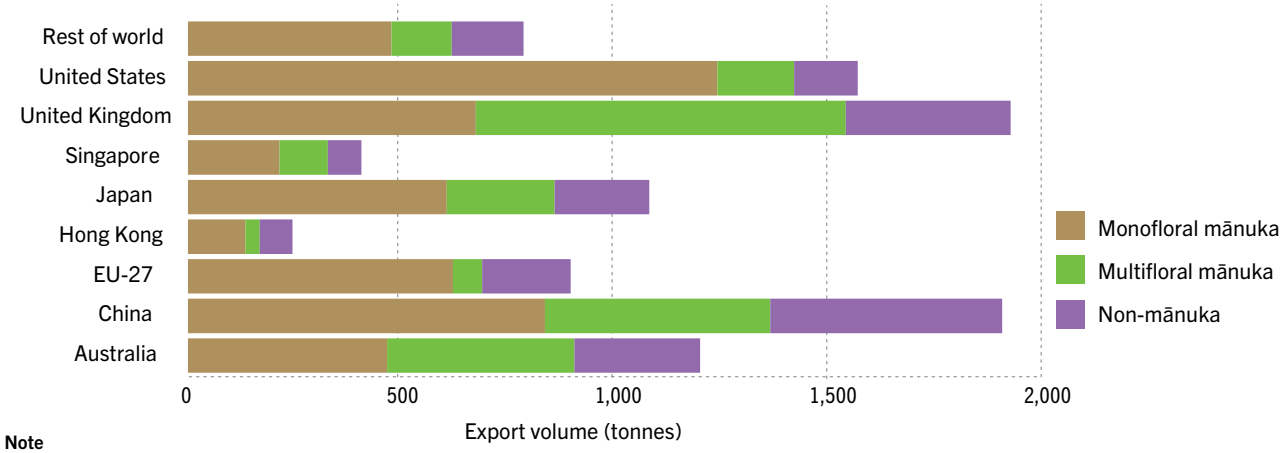
- $55.36 for monofloral mānuka honey
- $32.44 for multifloral mānuka honey
- $22.50 for non-mānuka honey.

FIGURE 5: NEW ZEALAND HONEY EXPORT VOLUME AND VALUE BY TYPE, YEAR ENDED JUNE 2020

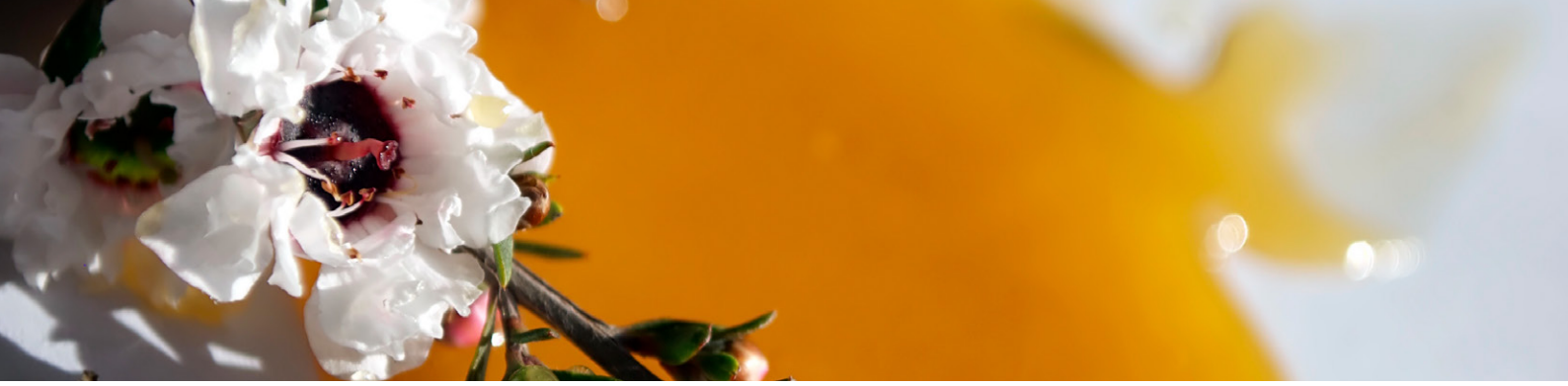


Source: Statistics New Zealand.

FIGURE 6: NEW ZEALAND HONEY EXPORTS BY FLORAL TYPE[1] BY DESTINATION, YEAR ENDED JUNE 2020



Note
1 Comb honey and honeydew honey are not included.
Source: Statistics New Zealand.

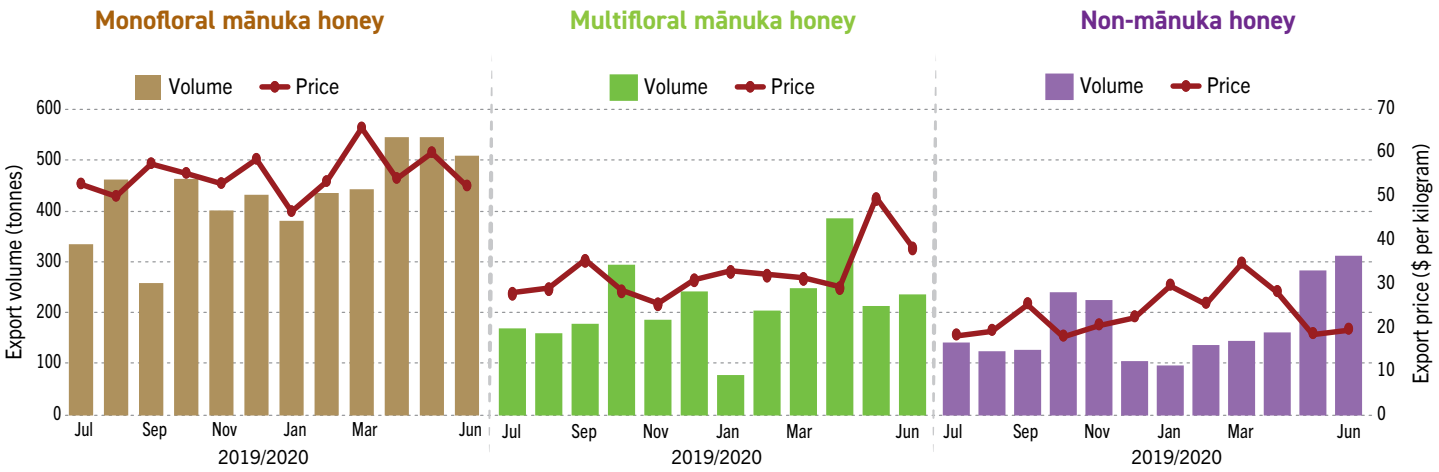


New Zealand honey exports are mainly exported in retail packs (Figure 8). While bulk honey exports (honey in drums) increased 28 percent to 2219 tonnes in the year to June 2020, they accounted for the same proportion of total exports as in the prior year, at 22 percent. The breakdown of the 2219 tonnes of bulk honey exports by honey type was:

- 29 percent monofloral mānuka honey
- 36 percent multifloral mānuka honey
- 35 percent non-mānuka honey.

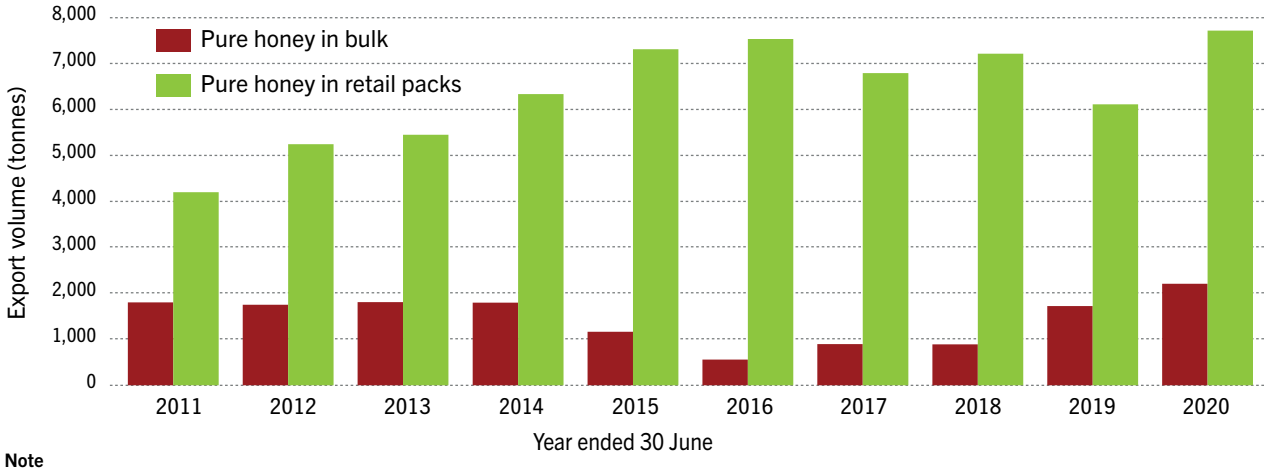
The United Kingdom remained New Zealand's top destination for bulk honey, with bulk honey exports increasing by 60 percent in the year to June 2020. Bulk honey exports to Germany, Japan and China also increased in 2019/20 (Figure 9).

FIGURE 7: NEW ZEALAND MONTHLY HONEY EXPORT VOLUMES AND PRICES BY FLORAL TYPE[1], YEAR ENDED JUNE 2020



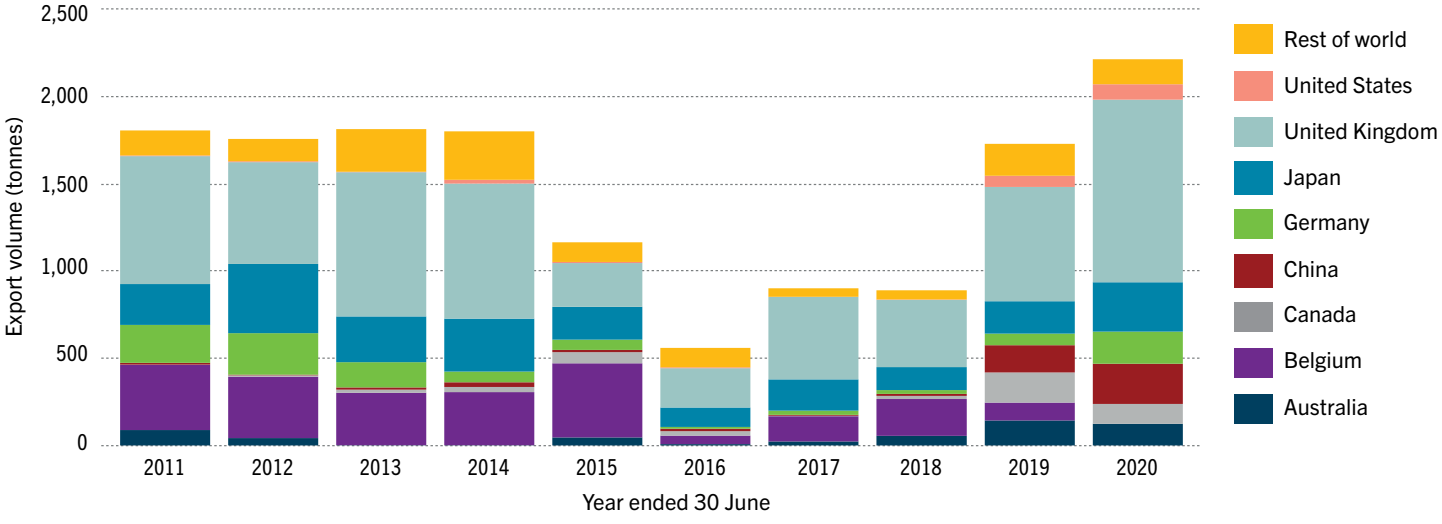
Note
1 Comb honey and honeydew honey are not included.
Source: Statistics New Zealand.

FIGURE 8: NEW ZEALAND HONEY EXPORTS BY PRODUCT TYPE (EXTRACTED HONEY)[1], 2011 TO 2020



Note
1 Comb honey and honeydew honey are not included.
Source: Statistics New Zealand.

FIGURE 9: NEW ZEALAND BULK HONEY EXPORTS BY DESTINATION, 2011 TO 2020



Source: Statistics New Zealand.

OPERATING COSTS (TABLE 7)

As honey prices continue to decline, beekeeping enterprises are actively looking at opportunities to increase revenue and/or reduce expenditure. Such measures include reducing the use of helicopters for hive placement, offering pollination services, and direct selling of honey.

Sugar

Beekeepers paid between $870 and $1370 per tonne dry weight for sugar in 2019/20. The large range in prices is influenced by the volume of sugar bought and whether the sugar syrup is inverted sugar syrup[6] or not. Sugar remains a significant cost to commercial beekeeping businesses. In 2019/20, some beekeepers made the decision to retain low value honey in the hives for bee feed. This will reduce the need for sugar feeding but does carry some disease risk if not managed well, so beekeepers are being advised to be cautious with this approach.

Fuel

Average diesel prices in spring 2019 were 10 to 20 cents per litre lower than in spring 2018. Autumn prices started very similar to the prior year but fell sharply by 30 cents per litre when COVID-19 movement restrictions were introduced in March 2020. The lower fuel prices will have assisted the profitability of beekeeping businesses for whom fuel remains a large expense.

Labour

The lower end of the wage rate for beekeeping staff in 2019/20 was below that of recent years, with the upper end unchanged (Table 7). This can be explained by some beekeeping enterprises opting to train unskilled workers in response to the shortage of skilled workers.

With the downturn in profitability, beekeeping operations are trying to find various means to reduce labour costs per hive, including increasing expectations that the number of hives managed by each beekeeper can be lifted from 350 hives to 550 hives.

Staff retention is an ongoing challenge and despite economic pressures, companies will offer attractive packages to skilled staff.

Laboratory testing

Honey destined for export markets that require official assurance for export eligibility needs to be tested by a recognised laboratory. The most common and required tests are for (i) the detection and quantification of the level of tutin in honey, and (ii) the confirmation of honey as monofloral or multifloral mānuka honey, or non-mānuka honey. Other tests routinely undertaken are to determine C4 sugar concentrations, agricultural chemical residue levels, and diastase activity (as an indicator for the heating of honey). Additional tests for mānuka honey are to determine the industry grading system ratings that the honey meets such as UMF®, MGO™ or equivalent.

6 Inverted or invert sugar is a mixture of glucose and fructose. Invert sugar is usually fed to bees as a syrup, based on the understanding that simple sugars (glucose and fructose) are easier for bees to digest than more complex sugars such as sucrose.

TABLE 7: ESTIMATED EXPENDITURE FOR BEEKEEPING OPERATIONS[1], 2016 TO 2020

YEAR ENDED 30 JUNE			2015/16	2016/17	2017/18	2018/19	2019/20
Labour	Worker[2]	$ per hour	16–35	16–36	17–35	21–28	19–28
	Manager	$ per hour	30–75	30–75	30–75	30–75	30–75
	Average working week	hours	45	45	45	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)	350:1 (800:1)	350:1 (800:1)	550:1 (800:1)
Fuel	Fuel (dependant on world price and exchange rate)						
Sugar	Bulk sugar (variable depending on overseas prices and NZ exchange rate)	$ per tonne	789–1,009	960–1,400	800–1,400	730–1,500	870–1,370
Varroa treatment	Varroa treatment (variable according to hive strength and product(s) used)	$ per hive	27–31	27–34	17–44	15–18	14–19
	Varroa strips (applied at recommended rates, two treatments per year)	$ per 1000 plus strips	23–25	23–27	23–29	23–29	26–32
Protein supplements	Hives may require 1–2 kilograms per year	$ per 20 kilogram bag	162–182	160–182	157–209	195–209	129–179
Contract extraction costs	Extraction of mānuka honey (costs more as frames must be pricked first to release the honey)	$ per frame	1.20–2.25	1.50–2.25	1.50–2.50	1.50–250	1.50–2.50
	Extraction of clover honey	$ per frame	0.60–1.50	1.00–1.50	1.10–1.50	1.10–1.50	0.65–1.50
Hives	Perfect condition hive, includes 2 brood boxes, floor, lid and 1 honey super, no bees, assembled and paraffin waxed	$ per hive	201	217–235	210–350	230–330	220–235
	Reasonable condition hive, includes 2 brood boxes and 1–4 honey boxes with bees (including valuations as part of business sale)	$ per hive	780–2,000	700–1,500	1,000–2,000	500–800	500–800
	Reasonable condition single brood nest hive (no supers)	$ per hive	560–800	400–600	300–600	390–420	355–675
	4–5 Frame nucleus hive; new hives includes nuclei box	$ per hive	200–300	275–300	100–350	180–315	200–400
	Repairs and maintenance, 7% of hive purchase price	$ per hive	28–42	28–42	30–44	30–45	30–45
	Wax to coat plastic frames	$ per kilogram	…	…	…	…	…
	Hive Strappers, used as required	$ per unit	8–12	6–13	6–14	7–12	5–15
Bees	Queen bees (virgin; mated)	$ per bee	30–40	14–80	20–80	14–75	14–95
	Select breeder queens	$ per bee	900–1,700	600–2,000	3,000–5,000	…	600–2,000
Protective clothing		$ per suit	137–169	138–189	159–217	124–229	150–200
Honey drums	New or re–manufactured honey drum (holds approximately 300kg of honey)	$ per drum	60–79	64–100	65–100	75	75–120
Apiary rentals paid to landowners	Mānuka sites (rental is paid either as a per hive rate, percentage of crop when sold or a combination of both)	$ per hive	75–150	50–250	50–400	50–250	20–150
		$ per apiary	500–1,000	500–1,000	500–1,400	500–1,400	1,000–2,000
		% of crop	10–45	10–45	10–45	20–30	20–35
		$ per hive + % of crop	$60–100 10–40%	$50–100 10–40%	$50–150 10–40%	$50–150 10–40%	$25–150 10–30%
	Non-mānuka sites	grams per hive			Variable, often 500		
Compliance costs	Risk Management Programme (RMP) annual audit costs	$ per audit for a processing RMP	up to 1,400	up to 1,500	up to 1,600	up to 1,725	up to 1,845
		$ per audit for a storage RMP	up to 895	up to 1,000	up to 1,000	up to 1,200	up to 1,284
	MPI Food Safety annual fees	$ if require export eligibility	…	1,005.70	1,005.70	1,005.70	1,005.70
	MPI Beekeeper Listing	$ application fee	n/a	135.00	135.00	135.00	135.00
		$ renewal fee	n/a	77.50	77.50	77.50	67.50
	Auditing of electronic certificates	$ per eligible document	up to 70	up to 70	up to 70	up to 75	up to 75
		$ per month auditing 10% of eligibility declarations raised	up to 70	up to 70	up to 70	up to 75	up to 75
	Tutin tests	$ per sample (first sample)	80–125	80	60–90	60–90	45–80
		$ per composite (up to 10 samples can be composited)	10–15	10	15–17	22	6–9
	National American Foulbrood Pest Management Plan levy	$ per beekeeper	20	20	20	20	40
		$ per apiary	14	15.17	15.17	15.17	n/a
		$ per hive	n/a	n/a	n/a	n/a	1.35
Apiculture New Zealand	Non-commercial (1–25 hives)	Annual subscription	86.25	86.25	86.25	86.25	86.25
	Commercial (26+ hives)	Base fee	172.50	172.50	172.50	172.50	172.50
		$ per hive	1.15	1.15	1.15	1.15	1.15
	Beekeeping Clubs	Annual subscription	230	230	230	230	230
	Packers and Processors	Base fee	172.50	172.50	172.50	172.50	172.50
		$ per kilogram of production	0.0345	0.0345	0.0345	0.0345	0.0345
	Health Product and Food Manufacturers	Base fee	172.50	172.50	172.50	172.50	172.50
		$ per kilogram of production	0.115	0.115	0.115	0.115	0.115
	Affiliate Industry (e.g, supply companies etc)	Annual subscription	460	460	460	460	460

Notes
… Data not available.
n/a Not applicable.
1 Expenses are exclusive of GST.
2 The highest hourly rates for workers will involve supervisory and some management responsibilities.
Source: AsureQuality Limited.

TABLE 8: MPI-FUNDED APICULTURE, HONEY AND RELATED PROJECTS

SUSTAINABLE FOOD AND FIBRE FUTURES (includes existing and recently completed projects set up under the Primary Growth Partnership and Sustainable Farming Fund)	**HIGH-PERFORMANCE MĀNUKA PLANTATIONS** (ended 30 September 2018; Final Report available) This Primary Growth Partnership Programme led by Mānuka Research Partnership (NZ) Limited aims to move mānuka honey production for medical use from wild harvest to science-based farming of mānuka plantations. Combining improved genetics with optimum husbandry practices could enable significant gains for New Zealand's mānuka honey industry. **https://www.mpi.govt.nz/funding-and-programmes/sustainable-food-and-fibre-futures/primary-growth-partnership/completed-pgp-programmes/high-performance-manuka-plantations**
	VARROA ELIMINATION UNITS (in progress) The parasitic mite Varroa destructor has caused significant damage to New Zealand's honey production since 2000. The mite infestation in hives severely impacts the health of honey bees. This eventually leads to the loss of honey bee colonies. Conventional chemical treatment involves placing miticide strips into the hive (miticide is insecticide for mites). However, strips do not deliver consistent and adequate dosage throughout the hive and their effectiveness is impacted by various factors e.g. wind, venting, temperature, humidity and other factors. The purpose of this project is to design, build and test a number of prototype Varroa elimination units (VEU). The VEU is a new device that is placed into the hive. It measures the amount of miticide circulating within the hive (using sensors) and automatically releases an appropriate dosage to ensure that a suitable level of miticide remains continuously within the hive. **https://www.mpi.govt.nz/funding-rural-support/sustainable-food-fibre-futures/current-sff-futures-projects/sff-futures-projects-apiculture**
	TREES FOR BEES: BUILDING BEE CAPACITY FOR SUSTAINABLE RURAL GROWTH (in progress) Building bee capacity by training people to plant for bees, enabling nurseries to supply bee plants and providing tools to design bee plantations. **http://www.treesforbeesnz.org/project-6**
	TREES FOR BEES: STRATEGIC BEE PLANTATIONS FOR POLLINATION AND HONEY (completed September 2019) The aim of this project is to support the development of the wider agricultural sector to achieve sustainability and growth targets, through increased honey and related medical product exports, and by improved pasture, horticulture and arable crop pollination helping drive growth. This will be achieved by having healthy and thriving bee populations through focused research on floral pollen and nectar sources that meet bee nutrition requirements at the right time and in sufficient quantity, and strategic bee plantations that enable apiarists, farmers and landowners to ensure year-round bee feed supplies. These outcomes will be delivered through demonstration farms, workshops and field days and employ a suite of extension tools developed during the project. **http://www.treesforbeesnz.org/project-5**
	ABAtE: ACTIVE BACTERIOPHAGES FOR AFB ERADICATION (in progress) American Foulbrood (AFB) is caused by a bacterial pathogen of honeybees, *Paenibacillus larvae.* Antibiotics use in hives is prohibited in New Zealand and hives with signs of infection must be destroyed immediately. Bacteriophages (phages for short) are simple viruses that kill specific bacteria. They are highly abundant, estimated at 1031 globally. Previous work abroad indicates that our AFB pathogens in New Zealand are susceptible to destruction by a set of specific bacteriophages that thrive in healthy hives and nearby soil. We will isolate native New Zealand phages for *P. larvae.* These will be completely sequenced to determine if they are safe for use and can be combined to produce a bio-protective phage cocktail for field testing. This project provides the groundwork study for an innovative approach to naturally protecting NZ beehives against AFB. **https://www.massey.ac.nz/massey/about-massey/news/article.cfm?mnarticle_uuid=07931996-67EA-45BF-82FE-7587F3608127**
	PROJECT CLEAN HIVE (in progress) American Foulbrood is a notifiable disease of the New Zealand honey industry. As the industry is expanding, both through commercial businesses and hobbyists, increasing incidence of AFB is a growing risk. Otago and Southland beekeepers will run a pilot study to test whether the current testing methods can be calibrated with the proposed new tests (qPCR and detection dogs) to provide cost effective tools for detection and management of AFB at the pre-clinical stage. If successful, this will provide new opportunities for improved disease identification and control of AFB to help prevent the impact and spread of a notifiable disease. The pilot study outcomes and the lessons learned will be shared with the wider industry.
	FOULBROOD DETECTION (in progress) This project seeks to develop a scientific methodology for training detection dogs to reliably detect the highly infectious bacterial disease American foulbrood in bee hives, by creating a "scent picture" of the disease. **https://www.mpi.govt.nz/funding-rural-support/sustainable-food-fibre-futures/current-sff-futures-projects/sff-futures-projects-apiculture**
	COMBATING THE GIANT WILLOW APHID (completed July 2019) Willows are highly valued in New Zealand as early season nectar and pollen sources critical to the spring growth of honeybee colonies, and for soil erosion control and riverbank stabilisation. The giant willow aphid (GWA), an invasive exotic species first reported in New Zealand in December 2013, is now found throughout New Zealand and is causing a cascading series of impacts. Infestation causes tree stress that reduces willow health and productivity. Aphids secrete large quantities of honeydew, rich in melezitose sugar that is readily collected by bees and introduced vespulid wasps. Melezitose-enriched honey crystallises within the hive, resulting in a significant volume of honey being either rendered non-extractable or tainted by the melezitose. This programme responds to an urgent widespread need from various industry groups by tackling three areas: (1) the economic impact of GWA, (2) identifying GWA resistant willow cultivars, and (3) determining options for biological control of GWA. **www.giantwillowaphid.co.nz**
	ALTERNATIVE POLLINATORS FOR SEED PRODUCTION (in progress) This project aims to develop managed fly species that can be mass reared to provide sufficient and predictable pollination to a range of field and covered crops to maximise economic yields. **http://mpiportal.force.com/public/SFFPublicPortal**

CLASSICAL BIOLOGICAL CONTROL FOR *VESPULA* WASPS – Phase II (in progress)
Vespula wasps are a serious invasive pest throughout New Zealand, causing direct economic losses and putting labourers at risk in various primary sectors. Biocontrol can offer a sustainable large-scale long-term control solution to complement current and future methods. This project will explore the potential of natural enemies, import the proposed parasitic flies, test their safety, apply to the EPA for release approvals and if approved, make initial releases.
http://www.landcareresearch.co.nz/science/plants-animals-fungi/animals/invertebrates/invasive-invertebrates/wasps/wasp-biocontrol-updates

A COLLABORATIVE INDUSTRY APPROACH TO REDUCE THE THREAT OF PAs IN HONEY Phase 2: Risk modelling and mitigation in the supply chain (in progress)
The presence of pyrrolizidine alkaloids (PAs) in honey represents a food safety and market access threat. Building on a previous Sustainable Farming Fund project, this project will identify mitigation strategies and a potential testing regime that is appropriate for the industry to continue to grow its international presence and position. A proactive response and industry self-regulation will ensure that New Zealand honey is positioned to meet any future national and international regulations related to PAs and that market access is not limited, and that the public perception of New Zealand honey continues to be "honey is healthy for you".

ROUND COMB HONEY PRODUCTION EVALUATION PROJECT (in progress)
This projects aims to assess whether feeding honey back to bees will increase the quality of honey into honeycomb sections. This may help to create a more consistent supply of premium comb honey for export.
https://www.mpi.govt.nz/funding-rural-support/sustainable-food-fibre-futures/current-sff-futures-projects/sff-futures-projects-apiculture

OTHER MPI FUNDED PROJECTS

ON-GOING RESEARCH ON THE MĀNUKA HONEY DEFINITION
New Zealand Food Safety continues to work collaboratively with stakeholders within the apiculture industry with regards to mānuka honey. Several projects funded through MPI's Operational Research Programme are aimed at ensuring the regulatory definition for mānuka honey remains fit for purpose. The first study aimed to improve our understanding of the influence sampling techniques may have on obtaining representative test results for the attributes in the mānuka honey definition. The study was completed in September 2020 and the outputs are being reviewed to provide clearer guidance for the honey industry when taking samples of honey for testing to meet the definition. New Zealand Food Safety has completed a second year of collecting honey samples as a continuation of a pilot trial conducted in 2018/19 which tested initial protocols to establish a national reference collection for New Zealand honeys. The work will be used and developed further within the Te Pitau Science Programme. Industry has provided valuable input to these projects in the design phase.

APIWELLBEING PROJECT
The ApiWellbeing project is a continuation of the Bee Pathogen Programme (see below), and is funded by MPI's Operational Research Programme and supported by the Management Agency for the National American Foulbrood Pest Management Plan. The work increases our efforts in understanding the health of New Zealand honey bees, targeting both exotic and endemic diseases and pests. Work areas include (1) developing new molecular tests for both endemic and exotic pathogens, (2) sequencing the genomes of *Paenibacillus larvae* (the bacteria that causes American foulbrood disease) to better understand genetic diversity and understand disease-types and how clusters of disease may be linked, (3) creating an array of online resources and guidelines to enhance bee biosecurity, and (4) establish a national collection of bees and data for further research opportunities.
https://www.biosecurity.govt.nz/protection-and-response/readiness/bee-biosecurity/apiwellbeing

BEE PATHOGEN PROGRAMME (completed)
The Bee Pathogen Programme is the most detailed cohort study ever conducted in New Zealand, funded by Operational Research Funds by the Ministry for Primary Industries. The same 60 apiaries were followed from September 2016 to March 2019. This programme is discovering (1) how common pests and diseases are in New Zealand apiaries using international best practice sampling and analysis protocols, (2) new evidence-based protocols for sampling and testing pests and diseases in New Zealand honey bees, (3) how apiary management is affecting varroa mite counts, trypanosome infection levels, AFB incidence, and the prevalence of Nosemas and viruses in New Zealand apiaries, and (4) the relative influence of these pathogens on hive productivity and colony survival. The results will be published towards the end of 2021.
https://www.biosecurity.govt.nz/protection-and-response/readiness/bee-biosecurity/bee-pathogen-programme

NEW ZEALAND COLONY LOSS SURVEY (2020 survey in progress)
An annual survey completed by New Zealand's beekeepers is helping with the understanding of the state of New Zealand's managed honey bee colonies. Biosecurity New Zealand has contracted Manaaki Whenua – Landcare Research to survey managed honey bee colonies since 2015. The annual questionnaire asks beekeepers about winter colony losses and the possible causes. MPI and industry use the results to monitor and compare colony loss rates between New Zealand and more than 35 other countries. The results also contribute to other work to improve bee health.
https://www.mpi.govt.nz/protection-and-response/readiness/bee-biosecurity/bee-colony-loss-survey

INFORMATION ABOUT THE REPORT

This report was developed from information gathered by AsureQuality Limited on behalf of the Ministry for Primary Industries, through surveys completed by beekeepers, honey packers and exporters and augmented with a review of export documents, published information and reports. Export data was sourced from Statistics New Zealand **http://infoshare.stats.govt.nz**

Aggregated data on the number of registered beekeeping enterprises, apiaries and hives under the National American Foulbrood Pest Management Plan are reported with the permission of the Management Agency for the National American Foulbrood Pest Management Plan.

From 2020, apiary and hive numbers reported by region reflects the actual number of hives and apiaries physically located in the region at their wintering sites, based on GIS data. Previously, apiary and hive data reflected the number of apiaries and hives owned by registered beekeepers in each region, regardless of where the apiaries were located. The regional location of hives is based on the location of the apiaries.

Honey production, price and expenses figures are based on a survey of a range of beekeeping enterprises that account for approximately 30 percent of registered hives in New Zealand. The survey is administered by AsureQuality Limited during their annual Risk Management Programme audits and/or hive audits, and via targeted interviews. Additional data sources are used for individual expenditure items, such as industry product catalogues and price lists, and direct queries to suppliers.

Surveys record honey crop information based on the beekeeper enterprise location, not apiary (or hive) locations. This means that honey production information is recorded against where the honey is extracted, not harvested. Therefore, with an increasing trend of migrating hives long distances to harvest mānuka, in particular in the North Island, honey production is being reported for the North Island and South Island only.

The data recorded in the surveys are extrapolated to provide an estimate of national honey production, price ranges for honey and bee products, and expenses for beekeeping operations.

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Thank you to Dr Richard Hall for providing the photo on page 5.
Front cover photo and images on pages 10 and 13 by Paul Sutherland Photography.

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