

to AAs 23/6/00

D: MRP 01 Report

APICULTURE

This section comments on a range of beekeeping activities and products throughout New Zealand.

KEY POINTS

- Varroa mite was discovered in Auckland in April 2000. Varroa is a parasitic mite that feeds on honey bee pupae and adults and is capable of killing bee colonies. It spreads easily and is possibly the most serious disease of honey bees.
- The mite was found during the bee export season to Canada. More than half the usual consignments to Canada of bees and package bees (1kg of bees and a queen bee in a ventilated shipping container) was lost as well as markets in Europe and the UK.
- The mite has not affected honey production as the season was more or less over by the time movement restrictions were put in place. However, it is expected to affect honey production and perhaps availability and performance of pollination hives next season.
- Weather patterns over most of New Zealand were cooler and wetter than usual especially from November to January. Honey crops were variable but an average crop of 9605 tonnes was still produced
- Export markets are very slow with few sales of bulk honey being made at good prices. This, combined with a large carry over of honey stocks from the 1998-1999 season, meant prices paid to beekeepers for bulk honey were ~~the same~~ or 8-20 % lower than last season.
- The lower Kiwi dollar has not offset depressed world prices for honey and a number of exporters to Japan and Germany, which are our two biggest markets, quote in Yen or Deuchmarks. The latter currency in particular has not experienced the same appreciation as the US dollar against the kiwi dollar. Meanwhile fuel prices have risen which will affect profitability as fuel is one of a beekeepers major operating expenses.

PHYSICAL FACTORS

Climate

Most areas in New Zealand experienced a settled cool to warm spring, which allowed colonies to build up well and utilise spring nectar and pollen sources such as willow and gorse. This changed at the end of October with a period of heavy rain and cold snaps throughout the country. This affected kiwifruit pollination and queen bee production.

The summer was rather wet and cool in many parts of the country especially when compared to the summer of 1998-1999. This reduced pasture honey production but good crops were obtained from bush sources such as tawari, manuka and kanuka. January and February was settled and warm over many areas but expected nectar flows from pasture species did not eventuate. Beekeepers described the honey crop as 'patchy' even in areas with similar geography and climate.

Honey Production

- **Northland-Auckland-Hauraki Plains**

This area produced an average crop of 25 kg per hive with good yields of kanuka honey, plus other bush sources and pennyroyal from pastures late in the season. Pohutukawa yields were reported as very good and one producer, who uses intensive colony management, produced over 70 kg per hive. An estimated 982 tonnes was produced in the region as a whole.

- **Waikato- King Country-Taupo**

An average crop of 1434 tonnes or 31.5 kg per hive, was produced mainly from pasture species with some good crops from bush sources.

- **Bay of Plenty-Coromandel-Poverty Bay**

The Coromandel and East Coast had a very poor crop with many beekeepers recording 10-20 kg per hive. Hives used in kiwifruit pollination usually produce less than equivalent hives not taken to pollination and this year was no different. The crop reported by Bay of Plenty beekeepers was less than last year and averaged about 25 kg per hive.

- **Hawkes Bay-Taranaki-Manawatu-Wairarapa**

Hawkes Bay had an excellent crop averaging 50 kg per hive while the other regions were nearer the New Zealand average of 30 kg. Taranaki averaged 15 kg per hive.

- **Marlborough-Nelson-Westland**

The West Coast experienced heavy rain which depleted the rata crop but manuka yielded well. Nelson and Marlborough recovered from the 1998-99 droughts and produced reasonable crops of pasture honeys and manuka. The total crop was estimated at 705 tonnes or 26 kg per hive.

- **Canterbury and North Otago**

The season was variable and late with a good average crop over the whole region. The best crops came from the lighter high country where average yields of 60 kg per hive were reported. The range for the region was 28 kg per hive to over 60 kg per hive.

- **South and Central Otago and Southland**

Southland, South and coastal Otago had a cold wet summer with a small honey crop of non premium honey. Central Otago was also variable with a late flow extending into April. The honey flow is generally over by late January. The drought broke in Otago with a variable honey crop. The region as a whole averaged 31 kg per hive, which is the same as the national average for 1999-00.

Table 1 New Zealand Honey Crop for 1999-2000

YEAR	Northland, Auckland, Hauraki Plains	Waikato, King Country, Taupo	Bay of Plenty, Coromandel, Poverty Bay	Hawkes Bay, Taranaki, Manawatu, Wairarapa	Marlborough, Nelson, Westland	Canterbury North Otago	South & Central Otago, Southland	NZ	Yield per Hive (kgs)
1995	354	962	1426	1200	499	1685	1921	8047	27.5
1996	829	1639	1077	1367	607	1287	1804	8610	30.0
1997	766	829	933	1112	919	2339	1639	8537	29.7
1998	1014	1404	1314	1230	598	1238	1283	8081	27.0
1999	615	1617	1800	1416	770	1782	1069	9069	29.9
2000	982	1434	1300	1323	705	2310	1555	9609	*31.1 <i>30.0</i>
6 yr av	760	1314	1308	1275	683	1774	1545	8659	29.2

* Total estimated production available for extraction divided by total number of registered hives (309,000 for 1999-00)

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Pollination

Most fruit crops experienced good pollination because of the warm settled weather which lasted until November. This allowed good colony build up in bee numbers and bee flight during flowering. Kiwifruit flowering (Hayward variety) was affected by the inclement weather during November. Bee foraging was interrupted and orchardists experienced a lot of bud rot in kiwifruit flowers. Many hives almost starved during the pollination period because of a lack of bee forage.

The varroa mite did not affect the pollination in the past season but is expected to have an effect next year whether or not eradication is attempted. The mite is expected to reduce bee populations and some beekeepers may choose not to risk exposing their hives to the risk of infestation by bringing them into the orchards. Pollination hive standards may have to be reviewed and pollination fees are expected to rise.

Live Bee Exports

The varroa mite was discovered in April 2000 in Auckland, right in the middle of the live bee export season to Canada. Export orders for packages and queen bees worth an estimated \$700-800,000 were lost because of the mite. Some markets may be recovered by next season but others will be lost or restricted to bees from the South Island.

Queen bee movements from the North Island to the South Island are likely to remain prohibited which will affect queen bee producers in the north and also South Island beekeepers who rely on bees from the north. It is very difficult to produce quality queen bees early in the spring in the South Island on a sustained basis.

FINANCIAL FACTORS

Revenue

New Zealand produces an average honey crop of 8700 tonnes and consumes about 5000 tonnes. This leaves 3-3500 tonnes per year that needs to be exported or carried over to maintain market stability. Honey exporters are trying to add value to New Zealand products as it is not profitable to compete on the commodity market for bulk honey with countries such as Australia, Argentina, Mexico, Canada and China. As New Zealand produces more honey than is consumed locally, world market prices have a direct influence on local market prices.

Local packers are also competing strongly amongst themselves for retail market share and supermarkets are also keeping wholesale prices under tight control. Honey is used as a loss leader by supermarkets and more and more honey is being sold as house or generic brands. The ever increasing costs of packaging, labelling, advertising, regulatory compliance such as Health department registration, Food Safety costs and compliance with the new Animal Products Act are all affecting profit margins of honey packers.

Bulk Prices for Honey (per kg/fob, beekeepers supply drums or containers)

Colour Grade	1999-00	1998-99
Light (clover type)	2.05-2.30	2.30-2.60
Light amber	1.95-2.12	2.10-2.40

Dark	1.50-2.50	1.85-2.50
Manuka	3.50-4.20	3.80-4.30
Comb honey	6.50-7.00 (export grade)	6.00 (NZ grade)

Beeswax

Light	5.50
Dark	4.50

Pollen

Not dried or cleaned	9-12	12-16
Cleaned and dried	16-22	18-25

Pollination (per hive)

Pip and stone fruit and berry fruit	45-50 per hive
Kiwifruit	
Hawkes Bay	70-80
Taranaki	60-70
Auckland	50-75
Bay of Plenty	50-90 (average \$78)

The price for kiwifruit pollination varies from district to district and is higher in the Bay of Plenty (BOP). This reflects a greater demand for hives in the BOP as well as membership for many beekeepers in the Kiwifruit Pollination Association (KPA). The KPA operates a hive and business practice quality assurance system. Many KPA members feed sugar syrup at programmed intervals to the hives to stimulate pollen collection and the cost of the sugar is often included in the pollination fee. The highest fees are from beekeepers who place hives in the orchards, and feed or supply sugar syrup themselves. Beekeeper's who supply hives to a broker, simply deliver their hives to a depot site(s) and collect them from the same sites after pollination. The broker organises orchard placements and sugar feeding. Average price to the beekeeper through a broker is around \$65.

Live Bees

Nucleus hives (4 frames with bees a queen bee, brood and honey) 35-50

Queen bees	local sales	12-18 each
	Export	16-30 each
Queen cells		2.50-4.00 each

Queen cells are immature queen bees that are placed in queenless hives to emerge as virgin queens after 1-2 days then they fly and mate

Bulk bees 11-14 per kg

Between 1-2 kg of bees can be taken from each honey producing hive and delivered to an exporter who repacks the bees in 1-1.5 kg packages with a queen bee and a food supply. These are exported to Canada, Korea, Japan, the UK and Germany.

Propolis

Propolis is a gum or resin that is exuded by trees and shrubs and collected by bees. It has antibiotic and is made into many therapeutic products after extraction and refining. Beekeepers receive \$120-140 per kg of pure propolis after extraction which translates to \$50-75 per kg raw product as collected from the hives or scraped off bee frames and boxes.

Other products produced from beehives include royal jelly and bee venom.

EXPENDITURE

- Beekeepers have made the most of reduced prices for second-hand imported trucks and 4 wheel drive vehicles to upgrade their vehicle fleet.
- The increase in the price of fuel will add to the annual expenses of beekeepers as truck operating expenses are one of the largest costs faced by beekeepers.
- Sugar is a major cost in all beekeeping operations and any movement in world prices or currency rates is quickly passed onto consumers.
- Timber prices have risen significantly recently and will factor in operating costs of beekeepers this winter as they purchase material to make replacement boxes and other hive parts. A bee box lasts about 10-15 years on average before needing repairs and maintenance or replacement.
- Exporters in particular are facing extra compliance costs for certificate fees, honey residue testing, (which allows exports to the EU), Animal Products Act and MAF fees. All beekeepers supplying to exporters will need to have documented quality systems in place based on HACCP (Hazard Analysis Critical Control Point).

NET RESULT

The gross margins presented are sourced from the industries application for a Pest Management Strategy document (1997), and adjusted for inflation at the rate of 1.5 % per annum ie 4.5 %.

Pollination Hives

Gross income	138.88
Production costs	<u>86.06</u>
Net income	52.82

Non-Pollination Hives

Gross income	108.56
Production costs	<u>66.10</u>
Net income	42.46

Weighted Average (Pollination and non-pollination)

Weighted by total number of each type of hive in New Zealand – 37 % pollination and 63 % non-pollination

Gross income	119.93
Production costs	<u>73.58</u>
Net income	46.35

ISSUES AND TRENDS

- The Pest Management Strategy for American foulbrood disease became law in October 1998. The National Beekeepers' Association (NBA) is responsible for managing and funding the programme. They raise money for the PMS, as well as other activities by way of an apiary levy which all beekeepers with more than 10

hives and or more than 3 apiaries must pay. Evasion of the levy, the costs of levy collection and the management of NBA affairs and the PMS continue to be controversial. The NBA is struggling to design and adopt a management structure appropriate to the business it conducts. Currently the executive are all volunteer beekeepers supported by a professional secretarial service.

- The varroa mite has disrupted the industry in the Auckland, Waikato and Bay of plenty areas since its discovery in April 2000. It will continue to have a significant effect on all New Zealand beekeepers and reliant manufacturing industries whether an attempt is made to eradicate it or not.
- Many issues are still to be resolved if varroa is declared endemic, such as movement control of bees to the South Island, surveillance of South Island hives for varroa to ensure area freedom, registration of chemicals to treat the mite, and residue testing.
- The cost of treating varroa will be significant, assuming Apistan miticide strips can be registered in New Zealand. Beekeepers will need to use 2-4 strips per hive per treatment and 2 treatments per year. The strips are expected to retail for over \$4 each so each hive treated could cost \$16-32 per year depending on the size of its bee population.
- If a significant number of hives are depopulated in an attempt to eradicate varroa (over 76,000 hives could be involved over the 2000-01 season) there may not be enough hives left in the North Island to repopulate these in time for pollination requirements in the spring of 2001. This number of hives represents 44 % of the hives in the North Island and 25 % of New Zealand's total hive holdings.
- Currently there are few imports of honey into New Zealand so beekeepers have a protected market, but there is the risk of importing *Melissococcus pluton*, the bacterium that causes the exotic bee disease European foulbrood. The bacteria could enter New Zealand in honey, bee products and on live bees. Honey can be heat sterilised but beekeepers are not convinced on the effectiveness of the heat treatment or the certifying processes of foreign governments. Whether or not bee products are imported depends on the assessed risk that product poses to New Zealand's beekeeping industry. The NBA is working with MAF on revising the risk assessment for imports of all bees and bee products.
- The continued move by Supermarkets to generic packaging (around 47 % of honey retail packs are sold as generic house brands) is concerning the industry, as is competition from other spreads.
- The NBA contracts a marketing consultant to help 'decommoditise' honey. Some success has been achieved with the discovery of antibiotic properties in manuka honey. Research is under way to find other honeys with unique therapeutic properties as well as unique ways to exploit the antibiotic properties of manuka such as impregnating bandages and dressings with manuka honey.
- Other marketing energies are going into promoting honeys by named floral sources and developing unique descriptions and uses for these honeys
- About 30 beekeepers are producing organic products either through BioGro or AgriQuality's CERTNZ programme. The effect of varroa and the need to use chemical controls on organic production is not known at this stage. Similarly the effect on compliance for organic orchards or crops of having pollination hives with miticide strips in them is not known.