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MANUKA HONEY - MARKET INSIGHT

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An analysis of the trends influencing the Manuka honey market prepared by Head of Investment Research, Con Williams.

NEW ZEALAND SET TO BECOME TOP GLOBAL HONEY EXPORTER BY VALUE ON BACK OF PLANTATION MANUKA

SUMMARY

New Zealand is now vying for the top spot as the most valued global honey exporter due to the success of Manuka honey. Its unique scientifically proven antimicrobial properties are different to other types of honey, creating a clear point of difference and defensible barrier to competition.

Manuka honey is being used in a wide variety of different formats in the food and beverage, cosmetics, nutraceuticals/natural health and medical product categories. The rise of more affluent Asian consumers - where honey is used as a natural remedy - and a shift in dietary preferences towards whole and naturally functional foods in many traditional Western markets, is fueling double-digit demand growth.

New Zealand honey is known for its superior quality, but the success of Manuka honey and lack of a formal definition was seeing more fraudulent activity as some operators took the opportunity to take advantage of the lack of regulatory oversight. Now the Ministry of Primary Industries (MPI) has implemented a formal definition to authenticate genuine Manuka honey alongside trusted certification, grading standards and enforcement. This will help cement its long-term credentials.

With strong demand growth for high quality Manuka honey, two poor harvests in a row from wild capture and with more being known about the agronomics of growing Manuka, future supply is set to shift toward plantations to close the demand gap. Research and trial programmes by Comvita are showing that the selection of superior plant genetics and management practices associated with plantation design and site selection can generate significantly improved quantities and quality of honey. For example honey from naturally grown Manuka typically has an average Unique Manuka Factor (UMF®) rating of 6-7. In contrast, it's expected that honey produced from Manuka plantations will have an average UMF® ratings of greater than 10+. UMF® 10+ and higher Manuka honey has consistently been in short supply over the last decade.

WHAT IS SO SPECIAL ABOUT MANUKA HONEY?

What makes active Manuka honey unique is its scientifically proven antimicrobial properties that are different to other types of honey.

Honey is a complex supersaturated solution containing approximately 80% sugars and a unique combination of other compounds - such as phenolics, flavonoids and volatiles - suspended in water. Every honey contains antimicrobial properties due to hydrogen peroxide, an antiseptic naturally present in it. However, its unstable and can be quickly destroyed by heat, light and body enzymes. This reduces its effectiveness in treating human ailments.

Manuka honey has additional antimicrobial activity in the form of unique chemicals such as methylglyoxal (MGO) and others. The MGO and the other antimicrobial activity are often referred to as the non-peroxide activity or its Unique Manuka Factor (UMF®) activity. High levels of this activity are what make genuine Manuka honey special. MGO is formed by a chemical reaction that occurs after the bees have processed the Manuka nectar into honey. Dihydroxyacetone (DHA) is a key compound present in the Manuka honey with no antimicrobial activity but over time DHA is converted into MGO which does have antimicrobial activity.

Most importantly from a medical or health point of view, non-peroxide activity in Manuka honey is not affected by the enzymes that break down hydrogen peroxide. This means its potency in treating human ailments, particularly in wound treatment, is not reduced like that of other honeys. This uniqueness helps create a defensible barrier to competition from other types of honey in the health and wellness segments of many different market segments.

The levels of non-peroxide antimicrobial activity in Manuka honey vary. This variation is primarily due to the concentration of Manuka nectar (specifically DHA) that makes up the honey compared to other nectar sources (bees will forage for nectar from a number of plants), the location it is harvested from, soil types, and the different varieties of Manuka plants.

It is also important to note the non-peroxide levels in the honey increases (i.e. DHA being converted to MGO) as the product ages, both in the hive and in storage before processing. This has important implications for how and when the honey is assessed and valued in terms of apportioning payment to the different stakeholders (i.e. the land-owner, beekeeper, and honey company).

GRADING AND LABELLING OF MANUKA HONEY:

The sector's journey to cementing its unique credentials passed a major milestone in December 2017 with the New Zealand Government developing a formal definition and strict export certification standard for authentic genuine Manuka honey. This is believed to be the only Government developed certification scheme globally.

Honey is deemed the third most adulterated food ingredient product in the world (behind milk and olive oil) and the market success of Manuka has seen more fraudulent activity emerge. Add in a proliferation of different labels and brands claiming a range of health benefits this had created some consumer confusion and drawn regulator's attention in New Zealand's major export markets.

The Government lead development of a formal Manuka definition and certification standards is an important step in formalising its unique point of difference compared with other types of honey, protecting the sector's long-term reputation. In time, the same standards are likely to apply to the domestic market, as some of the same risks remain for product that finds its way into key markets, such as China, via the grey channel trade facilitated by daigou traders. To capture critical acclaim and protect a brand, such as Manuka honey, requires a coordinated effort and disciplined approach to developing standards, certification, verification and consumer marketing information.

The new definition of Manuka honey comprises five attributes (four chemical compounds related to the nectar and one to a DNA marker) and two standards. Honey that meets the highest standard can be labelled as mono-floral Manuka honey. Honey that meets the lower standard must be labelled as multi-floral Manuka honey¹.

One of the key attractions of plantation Manuka is all the honey produced should achieve the export standard for the more valuable mono-floral type. This is because the bees will forage on vast areas of improved Manuka cultivars and will have a greatly reduced ability to source nectar from other plant species, which can dilute the high value Manuka honey crop.

The development of increased mono-floral supply from plantation Manuka points towards a widening in the price premium with multi-floral sources. This has already occurred with the implementation of the new standard but is likely to widen further as demand growth for mono-floral Manuka outpaces supply growth.

¹More information about the Manuka standard is available here: <https://www.mpi.govt.nz/growing-and-harvesting/honey-and-bees/manuka-honey/>

The new definition for genuine Manuka honey covers authenticity, but not its grading for antimicrobial strength. A grading measure is allowed on food labels, but therapeutic claims are not. This is due to no food products being allowed to carry such claims and honey not meeting the required nutrient profile under New Zealand's food standards.

A therapeutic claim is any reference to the prevention, diagnosis, cure or alleviation of a disease, disorder or condition. That has been a problem for food/health products that boasted about Manuka honey's antimicrobial activity curing human ailments on their labels. The standards have seen reference to the likes of peroxide activity, non-peroxide activity, total activity, activity, antimicrobial activity and bioactives diminish.

Grading systems that use the measure of certain components (i.e. content claims) in Manuka honey such as MGO, DHA and Leptosperin are still allowed on labels. The main grading system for Manuka honey is Unique Manuka Factor.

UMF® is an internationally registered trademark which can only be used by licensed users. Comvita was a founding member of the independent certification body and accounts for approximately 50% of all UMF®-graded product. The UMF® grade reflects the results of testing the level of non-peroxide activity, MGO, leptosperin and DHA. The presence of certain compounds is then graded according to the varying concentrations of these against a standard antiseptic (phenol). This allows a comparison of the honey's bacteria-killing power compared with that of a standard antiseptic. A honey with a UMF® rating of 5, has the same killing power as a solution containing 5% phenol. A honey that kills as many bacteria as a solution containing 10% phenol has a UMF® rating of 10, and so on. Manuka honey with a UMF® of 12+ has been proven effective in medical applications against a wide range of bacteria via numerous clinical trials.

The targeted consumer groups for Manuka honey products are concerned with the source, quality and food safety. Therefore, it's very important the sector leverages its superior quality, production standards, unique points of difference and traceability through developing trusted certification and grading standards.

FIGURE 1: COMVITA EXAMPLE OF MEDICAL PRODUCT



KEY PRODUCTS:

The four main product categories for Manuka honey are:

1. Food and beverage;
2. Cosmetics;
3. Nutraceuticals/natural health products; and
4. Medical.

There are many different products under each category and a variety of channels to market (i.e. retail, health stores, pharmacies, grey channel etc).

In the food and beverage category, it's not only being used on toast, or in-home cooking, but also as a flavour additive in a wide range of packaged food and beverage products.

Under the cosmetics category, products range from skincare to sanitisers. In the nutraceuticals/natural health product category there are health snacks, infant formula, throat lozenges, children's cold medicine and elixirs.

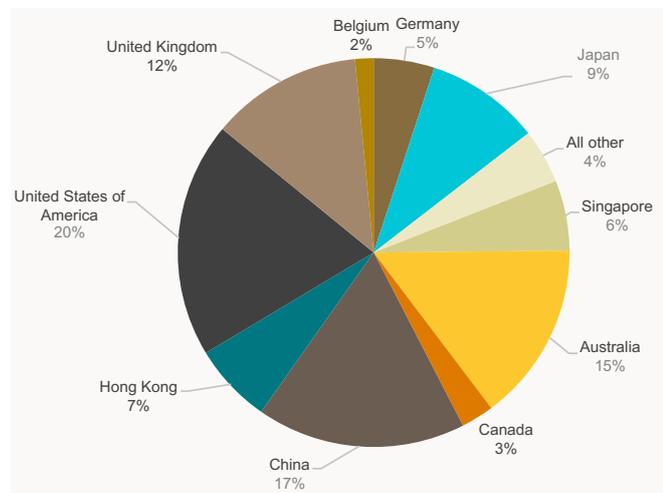
The medical category is perhaps the most exciting. Medical grade products (under the Medihoney brand developed by Comvita) are being used in hospitals to heal wounds and skin infections, particularly those non-responsive to standard treatments such as bacteria that are resistant to antibiotics. Growing antibiotic resistance is one of the world's most pressing human health issues currently. The US is the main market for medical products, so there is plenty of opportunities for growth in other countries.

Manuka honey's unique attributes combined with its significant brand equity and range of end uses delivers price premiums that are 6 to 25 times higher than standard honey. These price premiums increase with its UMF® grading as the honey is used in higher margin products, such as health and wellness products, nutraceuticals and medical products. Plantation Manuka will be at the higher end of this price curve with improved UMF® grading expected to be greater than 10+.

KEY MARKETS:

Total New Zealand honey exports now top \$350 million a year and have been one of the fastest growing exports at 19% per annum over the past 10 years. These statistics are for all honey, but industry estimates suggest Manuka honey accounts for 70-75% of the total value. This excludes medical-grade product and packaged products where Manuka honey has been used as an ingredient in a particular food, health or cosmetic product (which means the end value of all the products it's involved with will be much greater than the \$250 million estimate).

FIGURE 2: MARKET SHARE OF TOP 10 HONEY EXPORT MARKETS IN 2017/18



Source: MyFarm, Statistics NZ.

The largest markets for all honey exports are Greater China, United States, Australia and the United Kingdom. The top ten export destinations make up 95% of total export earnings. This makes it quite a concentrated marketplace, but there are plenty of growth opportunities both within existing markets and others untapped thus far.

The USA has recently surged into first place as one of New Zealand's larger markets. New Zealand product only makes up a small proportion (less than 5%) of total honey sales

in the US, with it being one of the largest importers and overall markets for honey consumption. A shift in dietary preferences towards whole and naturally functional foods, a category in which Manuka honey fits well in a number of formats, has boosted exports. Comvita has changed its market strategy to take advantage of this trend by building its distribution network and expanding its partnerships into North America, which has significantly aided this growth. This has been a deliberate strategy given the potential of the US market to sustain high margins and absorb significant volume (if investment is made in marketing, sales and distribution).

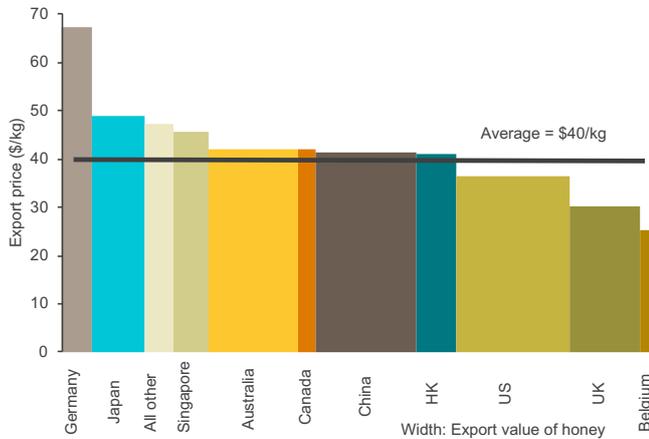
Prospects in the Greater China region remain strong too driven by familiar mega trends, such as rising incomes and urbanisation, and by the use of Manuka honey as a natural remedy in a wide range of products. Natural remedies form an important part of Chinese culture and customs for treating many health problems. Food in the Asian culture is viewed as "health first and nutrition second". This is the complete opposite to many Western markets.

Exporters have a range of distribution channels across the Greater China and Australasian markets which features grey channel trade that is all interconnected back to the same end-consumer. For Comvita, direct sales into mainland China are through its joint venture (JV) entity which operates over 100 Comvita-branded stores throughout the country, digital channels and wholesale markets. In Australia and the UK, Comvita operates its own distribution businesses with a limited branded retail presence. Elsewhere, the company owns 45 retail stores in Hong Kong, Japan, Korea and New Zealand. Some of these stores are standalone, while others are stores-within-stores, inside department stores, and other high foot traffic areas. At the same time Comvita's products are available through other retailers in wholesale channels in each market.

The online marketplace is increasingly being used by honey exporters both big and small. It provides companies with direct access to export markets without having to sell through distributors. Comvita's products are ideal for a 'click and pick' internet sales model. The company has several of its own country-specific e-commerce sites, and sells its products on well-known platforms globally, such as Amazon, Alibaba, JD.com and Rakuten in Japan.

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FIGURE 3: SIZE AND VALUE COMPARISON OF NEW ZEALAND'S MAIN HONEY EXPORT MARKETS IN 2017/18



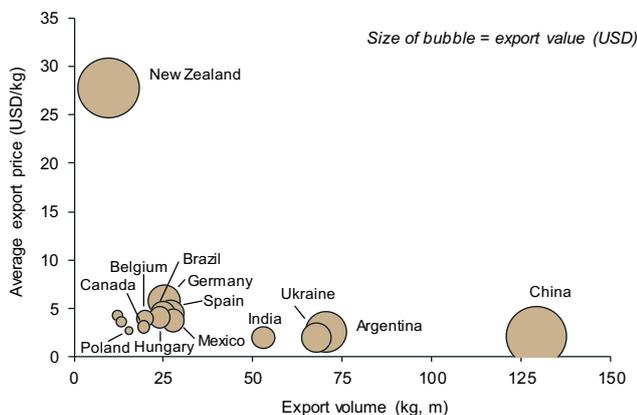
Source: MyFarm, Statistics NZ

INTERNATIONAL MARKETPLACE:

New Zealand honey and specifically Manuka honey, stands out from all other competitors. Its superior quality, trustworthiness, brand power and unique attributes means there is little direct competition. Most of the competitive pressure is from other competing health and wellness products, rather than other producers of honey.

Manuka honey's success sees New Zealand now vying for the number one global exporter spot on the back of superior value. New Zealand honey receives a price multiple that is seven to nine times higher than most other exporting countries. But on a volume basis New Zealand accounts for just 1.5% of global trade. A comparison with nearest rival China for the number one exporter spot is likening apples with oranges. New Zealand export volumes are just 7% of China's but achieve an average price that is 13 times higher.

FIGURE 4: VALUE AND VOLUME COMPARISON OF TOP 15 GLOBAL HONEY EXPORTERS



Source: MyFarm, Statistics NZ

Globally, most honey is still produced and consumed within the same market. Global import demand is estimated to be around USD\$2.2 billion. The largest import markets are the USA (26%), Germany (13%), United Kingdom (6%), Japan (6%) and France (6%). The top 20 import markets account for 91% of global import demand. New Zealand has high import penetration into Singapore, Hong Kong, Australia, China and Malaysia.

In terms of the largest exporters, the heavyweights are China, Argentina, Germany, and Ukraine. Most of the product sold by the other major exporters is significantly lower value than New Zealand honey, with an average export price of USD\$3-4/kg, compared with New Zealand at USD\$28/kg. Examining the retail price points of New Zealand honey in the main retail markets generally shows a similar premium, or multiple, as the average export prices. This indicates New Zealand product is in a completely different category to that of nearly all other major exporters. This reflects not only Manuka honey's unique points of difference, but also the product and brand development efforts, and marketing New Zealand honey companies have undertaken.

INDUSTRY SUPPLY:

Hive numbers and honey production in New Zealand have continued to grow in a rush to capture the Manuka opportunity. Hive numbers have been growing at 10% per annum since 2007. Honey production has been more variable according to weather conditions, but in a trend sense, has doubled to peak at nearly 20,000 tonnes pa (if the recent two poor harvests are 'looked through').

FIGURE 5: NEW ZEALAND HONEY PRODUCTION



Source: MyFarm, Assure Quality, MPI

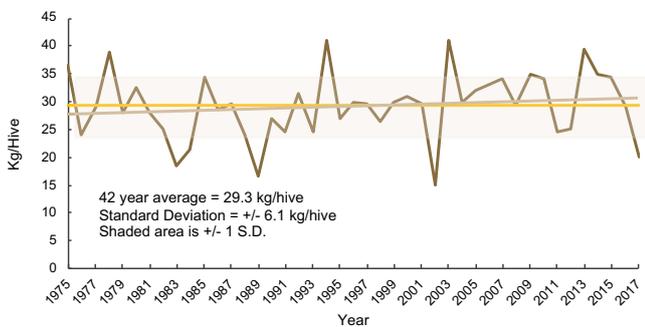
New Zealand's beekeeping industry has been described as a small 'cottage' industry with approximately 85% of beekeeping enterprises considered hobby beekeepers. Hobby beekeepers are enterprises that operate between

1 and 50 hives. Of those beekeepers, 73% are operating just five hives or less. While hobby beekeepers make up the majority of beekeeping enterprises, the other 155 of apiarists operate at least 87% of the total number of hives. Comvita operates one of the largest Apiary operations in the country with 7 branches located throughout the North Island.

Hive numbers are growing in the North Island. New commercial beekeepers are entering the industry and existing enterprises are increasing hive numbers. Currently the North Island has the better-known areas for producing higher grades of Manuka honey. Commercial beekeepers who previously provided pollination services for other horticultural enterprises have also been moving into Manuka production due to the more lucrative rewards.

The last two harvests have seen poor results owing to the weather conditions during the key flowering period. Over the last 42 years there has been a positive upward trend in the amount of honey produced per hive. The incursion from Varroa mite was responsible for the very poor harvest in 2002.

FIGURE 6: TREND AND VARIATION IN NEW ZEALAND HONEY PRODUCTION

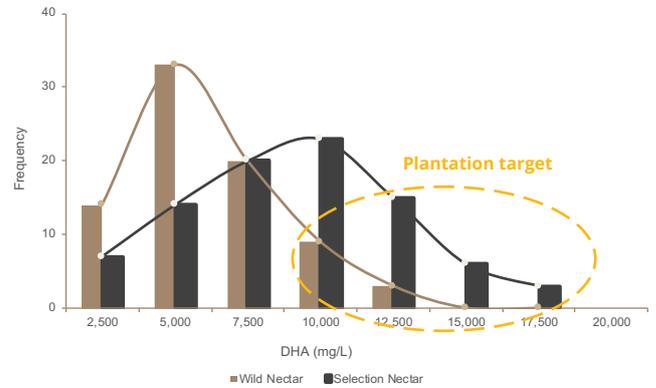


Source: MyFarm, Comvita,ASUREQuality, Ministry for Primary Industries.

The market reality is, with supply growth running at 8%, companies are struggling to keep up with double digit demand growth. The largest producer, Comvita, expects to grow its supply base of plantation Manuka rapidly to secure enough raw material from which to present its quality products.

The strategy is to grow Comvita’s supply of high quality Manuka honey by breeding genetically superior Manuka plants and establishing the best of these in New Zealand’s top growing locations. Comvita has planted 1,400 hectares of plantation Manuka in the last two years and aims to plant a further 2,000 hectares every year for the foreseeable future.

FIGURE 7: RELATIONSHIP BETWEEN PLANTATION MANUKA AND DHA CONCENTRATIONS



Source: MyFarm, Comvita.

Comvita has built up a significant amount of intellectual property through their plant breeding programme. This has been running for 12 years and currently covers 1,000 hectares of high performance Manuka trials. Comvita’s plant breeding programme has focused on a number of parameters including the DHA quality in nectar across different varieties, while extending and managing flowering periods to mitigate weather risk. They also focus on climatic tolerances, improved plant vigour and pest and disease tolerance. The company’s research is beginning to clearly define which genetic material and site-specific factors produce superior quantities of quality Manuka honey. Comvita’s knowledge will increasingly become a key competitive advantage within a more regulated and formalised market.