

# B-QUAL Australia Pty Ltd and B-TRACE Australia

ABN: 37 096 945 694

Manager of the Australian Honey Industry QA and Food Handling programs.

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B-QUAL Australia Pty Ltd and B-TRACE Australia  
are owned by AHBIC.  
The Australian Honey Bee Industry Council.

### General enquiries for B-QUAL & B-TRACE:

3 Windsong Pass Chirnside Park Vic 3116

B-QUAL email: [admin@bqual.com.au](mailto:admin@bqual.com.au)

B-TRACE email: [admin@btrace.com.au](mailto:admin@btrace.com.au)

Phone: 0404 38 1942

[www.bqual.com.au](http://www.bqual.com.au)

[www.btrace.com.au](http://www.btrace.com.au)



We acknowledge and thank Steritech and the CMV Group for their valuable ongoing support of B-QUAL and B-TRACE which assists us to continue to take the lead in research and the development works which we see as important to our industry.



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## Enhancing Traceability between the Apiarist and Orchardist Communities

Agriculture Victoria is pleased to announce an innovative project focused on revolutionising traceability within the apiarist and orchardist communities. This project specifically targets Almond, Apple, and Pear growers and aims to enhance the efficiency and effectiveness of capturing and sharing vital information regarding orchard chemical applications in relation to beehive movements and health.

Our goal is to develop a comprehensive traceability solution that establishes a common data standard to enable seamless capture, visualisation, and sharing of critical information, ensuring transparency and accountability between the growers and beekeepers. By implementing this traceability solution, apiarists and orchardists will experience streamlined record-keeping processes, improved data visualisation capabilities, and enhanced data-sharing functionalities. These advancements will contribute to more efficient operational management and provide valuable insights for decision-making and compliance purposes.

Through collaboration with input providers, including chemical resellers, we aim to facilitate engagement and validate the proposed traceability solution through demonstrator use cases, showcasing its benefits and effectiveness in real-world scenarios. This will establish a secure data pathway, enabling market access opportunities associated with orchard and beehive production/management systems. Ultimately, it will improve overall traceability efforts.

The expected outputs of this project are:

- **Consensus Data Standards:** A set of agreed-upon traceability data and metadata standards covering diverse data attributes to enable systematic data capture for hives and orchards.
- **Common Data Exchange Standard:** A standard and methodology enabling integration of industry-popular orchard and apiary data management systems, promoting seamless data sharing.
- **Integrated Digital Traceability Solution:** A user-friendly traceability solution with contemporary data infrastructure, including an API-based integration of existing industrial systems and a user-controlled dashboard for data access and sharing.
- **Demonstrator Use Cases:** Real-world examples showcasing the benefits of the integrated system, providing tangible evidence of compliance, transparency, and product quality.

This project represents a significant leap forward in traceability for apiarists and orchardists. We are excited about the potential impact it will have on operational efficiency, decision-making, and market access opportunities. By fostering transparency and accountability, we aim to elevate industry standards and drive positive change as a whole.

Further details:

Kieran Murphy, Senior Officer ([kieran.murphy@agriculture.vic.gov.au](mailto:kieran.murphy@agriculture.vic.gov.au))

Arbind Agrahari Baniya, Data Scientist ([arbind.agraharibaniya@agriculture.vic.gov.au](mailto:arbind.agraharibaniya@agriculture.vic.gov.au))



B-QUAL / B-TRACE are working with and supporting this program with Agriculture Victoria.

Less than 10% of beekeepers in Australia operating 100 or more hives have an accredited or auditable QA and food safety program in place. Help us improve that number over the next 12 months. If you are not a B-QUAL / B-TRACE member, consider joining now, or if you know someone who is not, pass our contacts on to them or phone our office or refer them to our websites for further information on our programs. [www.bqual.com.au](http://www.bqual.com.au) [www.btrace.com.au](http://www.btrace.com.au)

## How traceability drives the Australian Honey Bee Industry's national food safety program, B-Qual

B-Qual, the Australian Honey Bee Industry Council's (AHBIC) independently-developed and audited food safety program, is dedicated to assuring the integrity of supply chains that deliver premium honey products to markets across Australia and around the world.

Traceability forms the cornerstone of B-Qual's ability to deliver on its mission to ensure that 90% of honey produced in Australia is quality assured for both the domestic and export markets. The ability to verify provenance and trace honey sources by biogeographical region is a significant biosecurity benefit for the industry. It can protect the industry against loss of market share and reputation damage in the rare event of contamination, adulteration or disease.

### Traceability implementation made easy

The B-Qual program of certification, including introductory training, was designed by the bee industry for the bee industry. Its templates, supplier manuals and digital app allow its members to comply with all traceability requirements.

According to B-Qual, an effective traceability system will provide accurate production records, articulate the type of production, outline the volume, batch and/or identification number of the hive/area, and when relevant, where and how the product is distributed.

Don Muir, Director of B-Qual Australia, credits strong traceability standards with driving the quality assurance and certification program that B-Qual administers.

"Having a traceability process in place, whether that is an online management system or a more manual record-keeping trail, allows accredited apiarists and packers to maintain the processes they need to fulfill B-Qual auditing requirements," said Don.

"More than 300 commercial beekeepers and packing companies are members of B-Qual, so are subject to bi-annual/annual auditing to ensure they continue to implement B-Qual's quality assured policies and procedures to retain their certification," he added.

### Safeguarding consumer health and protecting reputations

Traceability record-keeping to meet safety criteria helps beekeepers make the right decisions and protects them from potentially losing customer or market credibility. It is also an investment in their business and safeguards them in the event of contamination, disease or damage to the product.

Being able to trace the origin and movement of honey one step backwards and one step forward at any time is key to maintaining a successful honey business and retaining B-Qual certification. It also ensures that export markets, retailers and customers can easily identify the purity of the product, its non-GMO compliance, level of pesticide (if applicable) and/or organic status.

### The future role of traceability for the bee/honey industry

Technology and online systems, including Artificial Intelligence, are already playing an increasing role in honey production and traceability. As demand for greater transparency and ethical practices in

the food chain grows, it is likely that traceability systems like those advocated by B-Qual will become the norm across the industry.

For more information about becoming a B-Qual certified bee operation, apiarists and packers should visit the [B-Qual website](#)

The expert team at Agriculture Victoria is on hand to discuss your individual needs when it comes to implementing an appropriate traceability program. This may include a completely online system or a combination of manual record-keeping and digital applications. For more info contact our Apiary team on [honeybee.biosecurity@agriculture.vic.gov.au](mailto:honeybee.biosecurity@agriculture.vic.gov.au)

*Text supplied by Agriculture Victoria.*

## Amendments to B-TRACE membership

Due to requests to re consider B-TRACE membership criteria, the decision has been made to amend the maximum number of hives and/or production output allowed.

From September 2023 the maximum number of hives allowed by any one operator will be 300 or a production output of 15,000 kgs.

Membership and audit fees combined remain unchanged at \$ 175 per annum plus GST.

Payment of joining and annual subscriptions are encouraged to be done on website PayPal portal.



The overriding factor in this decision is that record keeping and biosecurity controls are now more important than ever. By increasing the membership level to 300 it is hoped that we can appeal to enterprises in that lower middle ground area who are building their businesses but cannot yet justify a full audit program.

It is vitally important to the industry that full and accurate records of hive inspections, movements and biosecurity incidents are kept. These records can be easily kept by use of the B-TRACE app.

If you know of someone who is not in a food safety program, please refer them to our website [www.btrace.com.au](http://www.btrace.com.au).

We also encourage members to use the B-TRACE logo label which is available by contacting the office. This is a means to show that you comply with current industry standards.

# Honey talks, at UWA.

*TEXT BY Carrie Cox*

*Article reprinted with permission.*

Multidisciplinary research into every aspect of honey production has uncovered rich potential for the nation's beekeeping industry.

A five-year research program drawing on expertise from every corner of UWA is helping to harness the potential of Australian honey, historically one of the world's most undervalued sources.

The Cooperative Research Centre for Honey Bee Products grew out of a successful CRC grant application in 2017 by UWA research development advisor Liz Barbour. It soon expanded into a multidisciplinary team comprising researchers from areas as diverse as engineering, chemistry, geography, biology and business — a veritable hive of research activity.

According to Dr Barbour, who served as CEO of the centre until the CRC's official expiration in late 2022, the program soon tapped into a belief in the uniqueness of Australian honey and its untapped commercial and medicinal potential.

"Most of these researchers had never worked together before, but things came together very swiftly because everyone could see the value that could be added to this industry in so many ways," Dr Barbour says.

"Particularly here in WA, you're talking about some of the purest honey in the world, most of it from flowering forests and all of it free from agriculture chemicals — it's extremely rare.

But Australian honey across the board has been undervalued compared to honey from other countries and so one of the most important goals of the CRC was to produce outcomes for the industry that would help drive up the price of honey."

## ***Developing honey 'fingerprints'***

One of the many tangible outcomes of the CRC was the development of a 'fingerprinting' system to identify honey varieties, which is critical to enabling robust authentication of honeys, supporting quality control efforts and providing a baseline dataset for other research.

Associate Professor Cornelia Locher headed up this area of research, which ultimately resulted in the fingerprinting of 450 Australian honey samples, many now being registered internationally.

"We looked at the non-sugar components of honey and we zoomed right into them because they are chemically often related to the nectar source, which has a specific signature," she says.

"We used a technique known as High Performance Thin Layer Chromatography to separate the non-sugar constituents of honey. "The beauty of this technique is that it's quite visual and we produced fingerprints that present as bands of colour, which is not only helpful from an authentication point of view but also a marketing tool."

"Particularly here in WA, you're talking about some of the purest honey in the world, most of it from flowering forests and all of it free from agriculture chemicals — it's extremely rare."



***Dr Liz Barbour CEO of the Cooperative Research Centre for Honey Bee Products.***



Indeed, the marketing arm of the CRC – led by UWA Business School researcher Professor Sharon Purchase – used these coloured fingerprints as key components of the branding strategy they devised for WA honey varieties. Honey jar labels were produced with batch numbers and a QR code that takes consumers to a website with all the key information about the honey’s origins, including its specific fingerprint.

Associate Professor Locher says besides capturing the diversity of honey varieties on offer within WA, producing chemical and antioxidant baselines highlighted those that are currently “flying under the radar” and could be better promoted or utilised. For example, a WA-produced variety called Red Bell honey exhibits extremely high antioxidant activity on a par with, or possibly even higher than, the famed Manuka honey. “Now, with this baseline data and evidence of antioxidant activity, we can give information back to industry that is helpful for their marketing,”

Associate Professor Locher says. “It’s a great outcome and the industry is excited about it.”

#### ***Assessing honey’s antibacterial activity***

Working closely with the chemistry team was Dr Katherine Hammer, from UWA’s School of Biomedical Sciences. Her team carried out testing of the antibacterial activity of honey varieties, assessing their activity on different bacterial species.

“Traditional methods of testing didn’t suit WA honey varieties, so we came up with our own new method that gives each honey what we call an Antimicrobial Activity Value,” Dr Hammer explains. “In conjunction with the fingerprinting process, this enabled us to give the industry lots more robust data about their honey varieties.”

One of Dr Hammer’s CRC subprojects tested the activity of a small selection of honeys against bacteria that produces ‘school sores’ or impetigo.

“The results were positive and indicated that the pathogenic bacteria are indeed susceptible to honey,” she says. “The next stage of investigation would be to conduct clinical studies with patients to see if honey works in a real-world situation.”



#### ***Diagnosing bee health***

The CRC not only looked at the health characteristics of honey but necessarily of bees too. Biochemist and geneticist Dr Julia Grassl, from UWA’s School of Molecular Sciences, led this area of research, which looked at disease detection in bees, breeding traits and nutrition. “It’s particularly important given today’s

climate conditions where accessible land is increasingly spare due to climate change, bushfires and urbanisation,” Dr Grassl says.

One of her CRC projects targeted the bacterial disease called American foulbrood. “It’s one of the most devastating diseases in the honey bee industry and really hard for beekeepers to detect,” she says. “You’re basically looking for one or two slightly indented cells within a whole hive, so it’s easily overlooked.

“Its name comes from the fact that it smells, like death in fact, and as biochemists we know all smells are molecules; particles in the air. So, what we did was capture the smell in an infected hive and then we identified the molecules that are specific to American foulbrood. So, we now have a list of biomarkers that we know come from this disease and the next step is trying to make sensors for these molecules that will enable beekeepers to identify American foulbrood much earlier.”



***Dr Katherine Hammer and PhD student Kathryn Green carried out testing of the antibacterial activity of honey varieties.***

### ***Harnessing honey’s market potential***

Working closely with the scientists on the honey bee CRC were marketing experts from UWA’s School of Business led by Professor Sharon Purchase. Driven by the industry’s imperative to increase the price of Australian honey, Professor Purchase’s team quickly established that the greatest sales potential existed in the export market.

“We did market research to look at the buying narratives specific to particular countries and regions, the most common being ‘terroir’, which includes product information about geography, environment, heritage, soil and flowers, and how all of this comes together,” she says. “Terroir is particularly important to honey buyers in the Middle East, whereas the health narrative is important in China and the taste narrative is important in the UK.”

The marketing team was also instrumental in the development of a ‘chain of custody’ for honey bee products, the major component of which was the digitisation of the industry’s existing paper-based quality assurance system known as B-QUAL.

**A hive of research activity**

Other CRC projects have produced B-AGENT, a spatial modelling framework to help migratory beekeepers understand the effects of pressures like climate change on their beekeeping environments, and B-spatial, a decision support tool to help beekeepers select suitable apiary sites.

Besides the many legacy outcomes of the CRC, a number of research projects have continued beyond the CRC’s 2022 end date, a reflection in no small part of the enthusiasm of the researchers involved.

“Yes, we’ve all got the honey bug now,” says Associate Professor Cornelia Locher. “There’s ongoing research into clover honeys and the use of honey in wound care. We’re also now working with the University of Athens because they want to fingerprint some European honeys.

“There’s also a native bee honey project that’s ongoing. And there’s our spinoff commercial venture, Y-Trace, a honey testing lab in Yanchep that provides our techniques as affordable commercial services for beekeepers. We’re definitely still buzzing.”

**Benefits of being in B-TRACE**



**B-TRACE  
AUSTRALIA  
QUALITY  
ASSURANCE  
PROGRAM**

- Development of B-TRACE- First step in providing a honeybee product traceability system
- Industry owned QA and Food Safety program
- Owned by B-QUAL Australia Pty Ltd and managed by an elected board of beekeepers
- Ultimate ownership of B-QUAL is AHBIC; The Australian Honey Bee Industry Council
- Offers an affordable and hassle-free QA Food Safety and compliance program to smaller scale beekeepers
- Developed to assist beekeepers to comply with government regulations by producing honey and honey products of the highest standards
- B-TRACE standards Drawn from best beekeeping and best processing practices, backed by research, targeting factors affecting hygiene, quality and residues
- Ensures the adoption of good beekeeping and processing practices



Auditable Standards	Business Application
Apiary	<ul style="list-style-type: none"> <li>× Honey collection from apiaries</li> </ul>
Biosecurity	<ul style="list-style-type: none"> <li>× Reduction in the risk of honey bee disease</li> <li>× Outbreaks and spread</li> <li>× Product contamination</li> </ul>



## **B-spatial**™:

### **Future-proofing bee hive site selection**

**B-spatial**™ is a spatial decision support tool to help beekeepers select suitable apiary sites in a changing environment.

Honey bee health and honey production depend on colony access to quality and abundant floral food - the pollen and nectar produced by flowers when attracting pollinators.

Australia's mild weather, large tracts of wild forest, woodlands and spring wildflower bloom are key to our successful beekeeping industry. However, Australian flowering events are often short lived (often only two to three weeks long) and are not a regular annual event, especially for flowering trees.

Understanding when and where flowering is likely to occur is vital for Australian beekeepers when selecting hive locations. Finding suitable sites is becoming more difficult as the landscape and flowering events adjust to shifts in the climate, land-use change loss and the impact of altered fire regimes.

Geographic Information Systems (GIS) can facilitate the use of landscape information, in space and time, to better understand the resources available to beekeepers across Australia. Combined with information on flowering season, pollen and nectar quality, rainfall data, and burn scar information to track flora recovery, GIS information can help beekeepers select their hive site destinations across the terrain

The CRC for Honey Bee Products has developed the B-Spatial™ decision support tool platform to collate multiple sources of GIS data to help commercial beekeepers decide which of their many apiary sites to inspect for suitable pollen and nectar production to meet the food needs of their hives.



Planning before they go into the field, B-Spatial™ provides a GIS format for beekeepers to inspect the site, query the information and record their apiary site selections. B-Spatial™ presents data in visual easy-to-use maps and interactive tables and supporting information.

E-diary functions within the platform, combined with the ability to link to **B-QUAL**, allow beekeepers to digitally track the history of their hive locations and harvest outputs – information that has not previously been collated. Bespoke to each beekeeper, this information supports planning to meet the demands of their hives and, when the times are tough, find new hive locations.

**B-Spatial**™ provides a melliferous floral database which can be linked with site information such as apiary permits, fire history, climate and habitat characteristics.

B-Spatial™ was built by the CRC for Honey Bee Products as a beekeeper decision-making tool. It guides apiary site selection decisions for the sustainability of healthy and productive honey bee colonies in times of change.

**Location-based information helps beekeepers decide where and when to place their hives. B-Spatial™ can map, store, validate and access this information, providing a digital diary of bee food resources.**

The B-Spatial™ dashboard includes a map and an interactive table with species information

Species Name	Common Name	Quality Rating		Flowering Months												
		Honey Quality	Pollen Quality	J	F	M	A	M	J	J	A	S	O	N	D	
<i>Banksia fraseri</i>	Frasers dryandra	4	4													
<i>Banksia grandis</i>	Bull banksia	2	4													
<i>Banksia ilicifolia</i>	Holly-leaved banksia	3	3													
<i>Banksia kippistiana</i>	Yellow-flowered dryandra	2	4													
<i>Banksia leptophylla</i>	Slender-leaved banksia	-	-													
<i>Banksia littoralis</i>	Swamp banksia	3	3													
<i>Banksia menziesii</i>	Menzies banksia/Firewood banksia/Red banksia	4	4													
<i>Banksia nivea</i>	Honeypot dryandra/Fig flower/Couch dryandra/Ground dryandra	4	4													

A/Prof Bryan Boruff  
 Department of Geography and Planning  
 University of Western Australia  
 Email: [bryan.boruff@uwa.edu.au](mailto:bryan.boruff@uwa.edu.au)  
[www.crchoneybeeproducts.com](http://www.crchoneybeeproducts.com)

**B-QUAL can now combine your program audit with your organic audit.**

Where organic audits are requested, we can now complete both the Organic and B-QUAL audits together by our auditors Organic Food Chain Pty Ltd.

Organic Food Chain Pty Ltd (OFC) is an approved organic certifying body recognised by the Department of Agriculture, Forestry and Fisheries under the *Export Control (Organic Goods) Rules 2021*. OFC is accredited with IOAS to ISO/IEC 17065:2013 *Conformity assessment – Requirements for bodies certifying products, processes and services*.

Contact the office for more information.

B-QUAL is pleased to announce that we now offer Honey Analysis testing to members.

Contact [admin@bqual.com.au](mailto:admin@bqual.com.au) or 0404 38 1942 to request a test submission order form and test arrangements.

Prices shown are correct at time of newsletter publication. Due to circumstances beyond B-QUAL control it is advisable to reconfirm prices prior to ordering a test.

Assay	cost per sample
Moisture	\$45.00
Ash	\$55.00
Foreign matter (Insolubles)	\$55.00
Free acidity	\$60.00
Hydroxymethylfurfural (HMF)	\$70.00
Diastase (amylase)	\$140.00
Conductivity	\$50.00
pH	\$50.00
Invertase (beta-fructofuranosidase)	\$140.00
Pollen analysis	\$240.00
Adulteration test (C4 sugar content by EA-IRMS)	\$260.00
Total activity (Antibacterial Activity against S. aureus)	\$198.00
Non-peroxide activity (only with the above test)	\$40.00
Antioxidant activity (DPPH)	\$250.00
Antioxidant activity (FRAP)	\$250.00
Antioxidant activity (ORAC)	\$250.00
Colour (Absorbance @ 450nm)	\$50.00
Total phenolic content (Folin)	\$70.00

*The above pricing is based upon 1-10 samples.*

Assay	Cost for 1 sample	Cost per sample for 2 - 10 samples	Setup fee for 2 - 10 samples
3 IN 1 Leptospermum honey Test by HPLC (Methylglyoxal, Dihydroxyacetone and HMF)	\$245.00	\$140.00	\$220.00
Free Sugars by HPLC (Glucose, Fructose, Maltose and Sucrose)	\$240.00	\$130.00	\$220.00

*Please enquire regarding pricing for more than 10 samples.*

This is not a comprehensive list of tests available, so if you require tests not on this list please enquire. All prices are exclusive of GST.

For HPTLC testing including pollen signatures please contact [admin@bqual.com.au](mailto:admin@bqual.com.au) or phone office 0404 38 1942.

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