BUSINESS/RESEARCH

DATA COLLECTION: FACTS NOT FICTION

Rae Butler, Queen Breeder and VSH Specialist

To make a good decision—be it personal or business—the main requirement is to have the relevant information. Data collection is the process of gathering and measuring specific applicable information, which become the building blocks enabling informed decisions to be made.

Data collection plays a role in a cross-section of our lives, such as helping to cure a disease, boosting a company's revenue, making a building more efficient or providing an answer to a lingering question.

Once data is collected, it needs to be processed, researched and interpreted by someone before it can be used for insights. Depending on the complexity of the questions, that is generally a role for a data scientist. As beekeepers, we are to some extent data scientists.

Beekeepers over the years have always collected data on hive numbers, honey yields, weather, temperature, varroa mite levels, varroa treatments and the like. This data collection then enables the beekeeper to measure certain information and ascertain best management practice; for example, where the hives yield best in wet and dry seasons, overwintering problems and seasonal varroa treatment issues.

This information can then be pooled and collated into a broader data collection base such as the New Zealand Colony Loss Survey. The collective data provides robust information, which enables the data scientist to utilise their analytical skills and industry knowledge to identify regional and national trends and threats. This in turn provides good data to enable relevant, high-quality research to begin and to influence how organisations approach business challenges and answer problems along the way.

From an art to a science

The 'art of beekeeping' has evolved from a form of creativity to a 'science', where we are able to study behaviour from observation and experiment to form a body of knowledge, information and facts.

This is made easier with the development of different data collection procedures, strategies and techniques that are now available to individual beekeepers and researchers.

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Beekeepers are now in an era in which they can take advantage of new technology and utilise the data that has, sometimes unwittingly, been collected over the years for the good of their business and industry.

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The burning question is: which systems currently exist in the market that are compatible to our businesses, will aid in management decisions, and have benefits that outweigh the monetary value of the data collection?

Martin Laas, Midlands Apiaries Ltd.

To help answer this question, the Canterbury Hub invited Bryan Hoyt of Hivemind™ to talk at its 25 September meeting about how their data collection products work, and Martin Laas from Midlands Apiaries Ltd to explain which data collection systems they have trialled for research and hive management.

The Hivemind system is designed to track hive performance remotely. Scales and sensors are placed on a percentage of hives in an apiary to track a variety of measures from the hive weight, bee activity, internal and external temperature and humidity. The data is transmitted from the hive to a satellite hub, which is transferred to a cloud account which the beekeeper can log into anywhere in the world.

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Left to right: Brian Hoyt, Rae Butler and Marco Gonzalez thoroughly absorbed with Martin's talk. Photos: Maggie James.

For apiaries that are accessible remotely, this data offers a snapshot of what is going on at the site at any given time. The beekeeper can assess when the nectar is flowing, appropriate times to harvest to avoid other sources blending, wasp invasions, starvation prevention, general hive health and the impact of treatments. It takes the guesswork out of beekeeping, which in turn reduces labour and running costs. There is nothing worse than turning up with honey boxes to find the hives really require a feed.

humidity and temperature and activity were monitored, along with external wind, rain humidity and temperature. The internal temperature averaged 34.5°C, 65% humidity and normal activity from 7 am–8 pm: southerlies effectively meant the bees weren't consuming water.

A GoPro camera and scales were placed to monitor activity at a drinking station. The data was gathered and measured to be analysed by a data scientist, giving a valid case to promote replanting shelterbelts and providing drinking stations for the bees.

For day-to-day hive management, Midlands opted for apiary management over individual hive management. After trialling off-the-shelf apps, it was decided to utilise Google Maps and SharePoint as a temporary solution until these apps become more mature. Midlands' goal is to find a system that helps the beekeepers do a better job beekeeping, rather than creating extra administration work in the field. The emphasis is on hive movements and traceability for disease, task management regarding varroa controls and feeding supplements, overall hive strength, varroa counts and dead hives. A dashboard gives an overview for day-to-day management and an overview of areas. The data is collated for business intelligence and provides traceability, not only for disease but also for potential residues.

Martin's discussion reiterated the discussion with the Technology Panel workshop at the ApiNZ 2018 Conference, facilitated by Dale De Luca and David Mendes. Whichever monitoring and recording system beekeepers utilise, it is the right step forward to informed decision making.

For facts, take the guesswork out of the fiction.

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At Midlands Apiaries, Martin Laas used hive monitoring tools to research water consumption of 10 beehives on carrot pollination. The software currently available had missing parts, so they used these in combination with Hivemind.

Midlands was concerned that too many hives were under stress as water wasn't readily accessible. Therefore, the internal

WHO TO CONTACT WITHIN APINZ

Are you shifting house, changing your e-mail address or changing your business address?
Has your hub or club made changes to officers or other contact details?

Here's a handy list of who to contact within ApiNZ.

Changes to membership details (i.e., not a hub or club)

E-mail your changes to memberships@apinz.org.nz

This ensures that your details are current and that relevant correspondence (such as the ApiNZ weekly member update) and *The New Zealand BeeKeeper* journal will be sent to your new address as quickly as possible.

Don't forget to advise the AFB PMP team of your changes as well by contacting info@afb.org.nz

Changes to hub or club details

E-mail info@apinz.org.nz AND editor@apinz.org.nz

This ensures that hub and club* details will be updated on the ApiNZ website and in *The New Zealand BeeKeeper.*

* Club changes will be updated regularly on the ApiNZ website, and published in *The New Zealand BeeKeeper* in the April and October issues.