



CASE STUDY

INCYT

No Bees. No Food.

BeeSTAR



BRISBANE, QLD

Specialty Digital Remote Hive Monitoring

Product BeeSTAR



Paul Valkenburg

Valkenburg Apiaries, Balhanna, SA

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CHALLENGE

Apiarists traditionally relied on manual hive inspections to detect any issues with hive health or activity. With some apiarists managing over 1,000 hives and the pollination season for the most important crops only lasting 6 weeks, under-performing hives can easily go undetected. This endangers pollination-activity, and therefore the productivity of orchards.

SOLUTION

Indications of changing temperature and humidity act as a proxy for hive health and activity, with the ability to identify whether the hive is functioning well or if there are issues which will show up as an anomaly. BeeSTAR's Simon and Ray created an algorithm to determine those anomalies and got in touch with INCYT and set out to create an in-hive remote monitoring system for apiarists.

OUTCOME

Since apiarists are now able to remotely monitor their hives and understand critical indicators such as signs of swarming and new queen status between the different hives they manage, they are easily able to identify hives with issues and those likely to underperform in their pollination activities. Because of this, short-term hive issues can be rectified immediately to enhance pollination activity, while long-term the highest performing hives can be selected for their genetics to make sure only the best progeny is used to create new colonies.

IDENTIFYING A NEED AND MAKING THE RIGHT CONNECTIONS

Many businesses are built on chance-encounters, and BeeSTAR is no different. When Ray Kwon asked Simon Burt whether he could help him source some honey with a provenance of origin for his family in South Korea, they soon realised that the only way to achieve this would be the 'old fashioned' way of taking photos and manually recording hive locations. In Simon's words: "When we dove in a bit deeper we found beekeepers relying on a lot of manual labour and guesswork while wasting time driving around and acting on visual queues. We realised that, with the technology available today, there must be a way to improve this and so we started BeeSTAR together."

Once Ray and Simon had established their MVP they entered and won a technology competition at the annual beekeeping congress, and went on to pitch their solution at EvokeAg 2023 in Adelaide, SA. It was there that they met with INCYT and decided to forge a partnership according to Simon: "Our MVP was pretty clunky, but all it had to do was prove the fact that what we set out to do was meaningful to beekeepers and a product worth pursuing. By putting a beehive on a set of scales and having a temperature probe going inside, we were able to get the data we needed to help beekeepers improve their decision making processes. We realised that by partnering with INCYT we'd have access to their already-proven technology and their team of engineers to help us refine our product and together create a commercial offering."





DEVELOPING A PRODUCT THAT IS READY FOR THE FIELD

The road from MVP to a product that is ready for a full commercial launch is not easy, as any technology business will attest to, but having the right resources and technology at hand does make the process a lot more straightforward says Simon: "We made sure to spend a lot of time with beekeepers and interview them so we could get to the actual root cause of what they need, which helped us build our product BeeSTAR around the requirements of beekeepers and pollinators. By finding out what beekeepers see as the main problem and how this can be fixed, we were able to dial our solution in from day one."

One such beekeeper is Paul Valkenburg, Valkenburg Apiaries, from Balhanna, SA, who runs around 1,200 beehives with a focus on providing pollination services to almond orchards and growers of other crops. Paul had been craving technology for a long time, but there was one important factor that he wasn't seeing with any other provider, he says: "I wanted a monitoring solution that monitors every individual hive in a cost-effective way. The way I see it there is no point in only monitoring part of my hives, as that would still allow the under-performing hives to go undetected and drag our pollination performance down."

Simon adds: "Another topic that was raised by many beekeepers is that graphs are too complicated, especially in combination with the large number of beehives that most beekeepers run. After taking in all the feedback, we decided to settle on a simple traffic light system that gives an overview of the property, and which they can then break down into individual loads and hives. Throughout the whole process it has been easy to work with all the right people within INCYT and get the right information for whatever we were working on together. We are definitely pushing the boundaries of technology by working in some very remote areas and needing to adapt INCYT's sensors so they can be integrated with general beekeeping practices and making sure that we can collect accurate data. It has been great partnering with INCYT on this journey and I believe we've both learned so much already and have achieved great outcomes for beekeepers in doing so."



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CEO And Co-Founder, BeeSTAR

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REMOTE MONITORING AND HIVE IMPROVEMENTS

The ultimate goal for BeeSTAR is to enable beekeepers to improve their beekeeping practice and hive performance, which will lead to an increase in yield and profit for growers, but of course there has to be value in the product for everyone involved explains Simon: "What we're really doing with BeeSTAR is bridging the gap between producer and beekeeper by creating a digital platform that creates transparency for both parties, resulting in a value increase for everyone involved. By creating a matrix around hive health and monitoring each individual hive on a property a producer can make sure they are getting value for their pollination money, while a beekeeper can make sure they have their hives optimised at all times. So, there's really a good opportunity here for everyone involved."

Creating this value is crucial, says Paul Valkenburg: " With the honey market as low as it is currently, we now have to make more money out of pollination than out of honey, whereas traditionally we would make over two thirds of our revenue from honey sales. By optimising the value we create for our pollination clients, we'll be able to optimise our revenue in that space as well. The biggest issue in any business is carrying dead wood, or 'passengers' as we like to call them in the case of beehives. To be able to use technology like BeeSTAR to identify those poor performers seamlessly and quickly is a massive labour saving. But the biggest saving is the percentage increase in performance when you reduce the number of passengers. If I can have 10% less passengers, I'm making 10% more money - simple as that. This is why I love to see companies like BeeSTAR and INCYT working together to combine their technology, passions and skills to create better outcomes for us beekeepers. I don't know much about technology myself, but I know a game-changer when I see one!"

Simon concludes: "In the end we're all trying to achieve the same goal: in an industry that faces many headwinds such as low honey prices, the threat of varroa mite, traces of pesticides in bee habitats, and the lack of varied nutrition for bees due to mono-culture cropping, we need data to be able to help beekeepers optimise their hives and thrive despite the headwinds. Because we all know how important bees are: no bees, no food!"

WHAT INCYT OFFERS YOU

- Remotely monitor and control your assets
- A centralised dashboard with all your data
- Industry-leading trackers, sensors & network equipment
- Operational excellence through innovation

NEXT STARTS NOW

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