

Technology Tips For Beekeepers

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THE INSIGNIA PROJECT: ENVIRONMENTAL MONITORING OF PESTICIDE USE THROUGH HONEY BEES. Norman L. Carreck INSIGNIA Consortium; Carreck Consultancy Ltd and University of Sussex; UK; norman.carreck@btinternet.com; <https://www.insignia-bee.eu/>

Honey bee colonies are excellent bio-samplers of biological material such as nectar, pollen, and plant pathogens, as well as non-biological material such as pesticides or airborne contamination. All material collected is concentrated in the hive, and the honey bee colony can provide four main matrices for environmental monitoring: bees, honey, pollen, and wax. INSIGNIA aims to design and test a scientifically proven citizen science environmental monitoring protocol for the detection of pesticides via honey bees. It is a pilot project funded by the EU and is being carried out by a consortium of scientists from twelve countries. Pollen collected in pollen traps is being sampled every two weeks to record forage on a single day. In contrast, wax acts as a passive sampler, building up an archive of pesticides, so alternative in-hive passive samplers are being tested to replicate wax as a "pesticide-sponge." Samples are being analyzed for the presence of pesticides and the pollen's botanical origin using a DNA fingerprinting approach. Data on pollen and pesticides will be then be combined to model the exposure risks to honey bees and wild bees. The system was tested in four countries in 2019, and this has been expanded to nine countries for 2020. 16 minutes, <https://tinyurl.com/5rneucpc>



NECTAR TECHNOLOGIES: UPDATE AND CASE STUDY

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In Gilbert's team at the USA Pacific Northwest National Laboratory, in 1999, we put the first tags on bees. Small passive tags using nanoblock microchip technology are now employed for inventory control in the medical industry, warehouses, and stores such as Wal-Mart. These tags, produced by Nectar Technologies, a world leader in volume production of Radio-Frequency Identification (RFID) products, were developed by Gilbert's team. This same team placed the first RFID tag on a bee for us. Combinations of passive tags connected to wireless, cellular, and satellite communications can economically provide theft protection and hive recovery and also enable nearly effortless inventory, location, tracking, and data collection to the commercial bee industry. In our presentation, we cover currently available applications for theft protection but also for data-driven bee management. We conclude with this advice to build an infra-structure for intercepting loads of stolen hives is already in place and being used by Nectar Technologies. It is time to put in place a well-designed, state, and nation-wide service. If you buy only for theft protection, the odds are that it will not be working when a theft does occur. Instead, build a system to meet your needs, make it useful for many purposes, and use it to improve your management by providing data-driven information. Theft protection is a bonus. Please contact us for help designing an integrated RFID and communication system that meets your unique business needs. 19 minutes, <https://tinyurl.com/42bpxw2h>

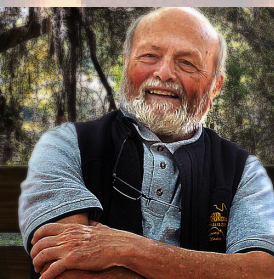


WINTER BEEHIVE STORAGE

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Three seasons ago, our local beekeeper community approached us about wintering beehives in our vacant commercial poultry barns. They asked for a barn that could maintain 40 degrees in total darkness, control the Co2, and provide backup safety measures at an affordable price from Thanksgiving time to February. With 20 years of experience ventilating these barns through the harshest Utah climate, we knew we could help. Much of the equipment needed was already in place. By re-purposing what we had, we could pass the savings on to the beekeeper. Our 15-minute presentation focuses on four main areas: Barn prep.

ventilation, temp and humidity control, and safety backups. The program describes how the barns are set up. Then we walk you through the process of what we had to do extra to achieve the four requests from the beekeepers. Along the way, we offer tips on how to size and place equipment, manage problems, and other issues to prepare better the listener to store their hives or be more aware of what topics to discuss with a potential vendor. Ventilation is the heart of winter storage success. We demonstrate a crash course on setting up a negative pressure vent system. Also, we share thoughts on managing the 24-hour swing. We wish you the best success in caring for your bees. 14 minutes, <https://tinyurl.com/7pa965w4>



<https://beekeep.info/vita/details/>

