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Improving Honeybee Queen Shipping Methods

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Recent studies have documented adverse conditions in Canadian and USA honeybee queen shipments. The first objective of this project was to measure environmental conditions experienced by queens shipped from USA and within Canada. Data loggers recording temperature and relative humidity were installed in packages of commercial honeybee queen shipments from one Californian operation and one Quebec operation during spring and summer 2017. Sixteen queen shipments were followed. Results show minimum / maximum temperature of 12°C / 34°C and minimum / maximum relative humidity of 27% / 68%. Shipments took an average of 31 hours to reach their destination (maximum distance of 4 800 km; range 20 – 64 hours).

The second objective of this project was to test different queen shipping methods (cage models and presence of attendant worker bees within the cages) on the internal cage temperature, queen survival and sperm viability of the queens. We compared four shipping treatments (see Figure 1): 1) Jz-Bz® plastic battery shipping boxes with 4 attendant worker bees inside individual queen cage, 2) Mini Riteway® cardboard shipping boxes with 4 attendant worker bees inside individual queen cage, 3) Jz-Bz® plastic battery shipping boxes with 4 attendant worker bees inside individual queen cage + 250 loose bees inside each box and 4) Mini Riteway® cardboard shipping boxes with 4 attendant worker bees inside individual queen cage + 500 loose bees inside each box. Shipping methods were exposed to 6°C, 26°C and 40°C for 2 hours. A total of 72 queens were randomly distributed in one of the four shipping treatments. Survival of queens and sperm viability were measured

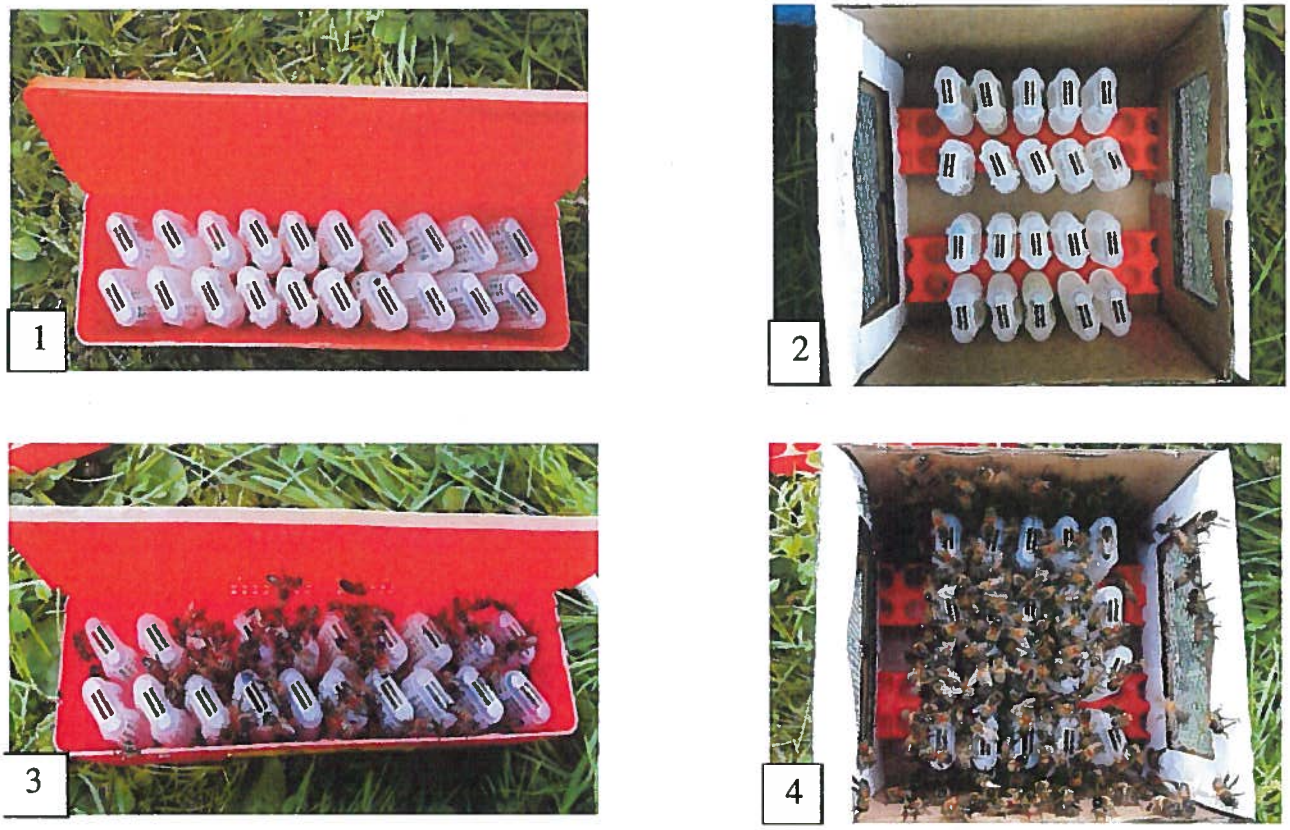

Figure 1. Experimental shipping treatments : 1) Jz-Bz® Jz-Bz® plastic battery shipping boxes with 4 attendant worker bees inside individual queen cage, 2) Mini Riteway® cardboard shipping boxes with 4 attendant worker bees inside individual queen cage, 3) Jz-Bz® plastic battery shipping boxes with 4 attendant worker bees inside individual queen cage + 250 loose bees inside each box and 4) Mini Riteway® cardboard shipping boxes with 4 attendant worker bees inside individual queen cage + 500 loose bees inside each box.

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at the end of the experiment. Results show that the addition of loose bees inside queen shipments regulates temperature within shipping boxes when exposed to low temperature; loose attendant bees were able to keep the inside temperature above 25°C while temperature decreased down to 15°C without them (Figure 2). Exposition to 6°C and 40°C for two hours resulted in an average decrease of sperm viability of 12% (± 8,6%) compared to the control group exposed to 26°C. The last objective will be accomplished in 2018; queens will undergo various shipping methods and will be introduced in colonies. Survival and performance of these queens and their colony will be recorded until spring 2019. This study will offer novel information on queen shipping conditions and will help improve honeybee queen shipping conditions.

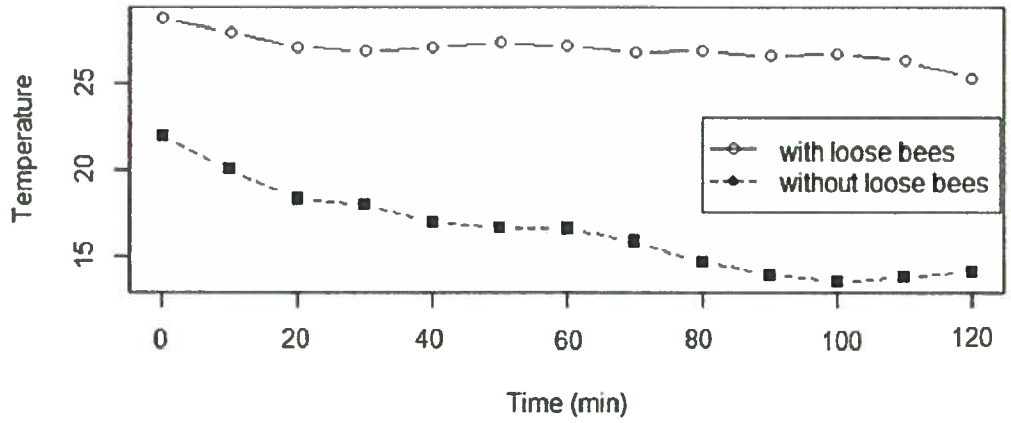

Figure 2. Thermoregulation inside queen shipping cages with or without loose bees when exposed to 6°C for two hours.

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End Date: March 2019
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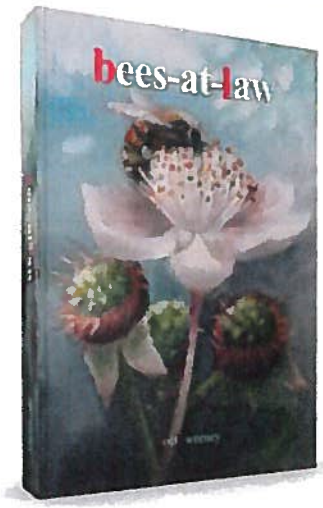
Bees-at-law

by Noël Sweeney



The writer of the comprehensive work Bees-at-Law is a barrister with a special interest in animal law, so he brings a depth of knowledge to a fascinating subject. The book examines and explains in detail the legal status and rights of these complex creatures, and the rights and responsibilities of those who keep and benefit from them. Many cases which came to court in several jurisdictions, covering, among others, nuisance, danger and negligence, are covered. Are bees wild or domesticated creatures? Are they, as the Roman Jurist Justinian defined, ferae naturae, or domitae naturae?

He defined the status of the bee thus:

'Bees are wild by nature; and so if a swarm alight on your tree, it is not to be considered yours, until you have hived it, any more than the birds which build their nests there; and hence, if it be hived by another, it becomes his property …'

A wealth of facts about bees have been researched – the Apiarist Minister in Australia who in 1885 introduced the idea of a bee sanctuary on Kangaroo Island, the Manchester Bee, that symbol of the industrious textile workers who created the city's wealth, the fact that, under Islamic and Jewish law, bees were unclean, but honey was not, and the use of the western honeybee to sniff out illegal drugs, as they have proved to have an acute ability to respond to the presence of pure cocaine and heroin.

The bee is a potent symbol, evoking many concepts applicable to the human condition, and Sweeney's final chapter, Searching for the Soul of a Bee, takes us further into the sphere of our relationship with the bee, and indeed other creatures. The concept of the soul, who has one and who does not, is a device useful for human purposes in that we can categorise living beings by this yardstick and treat them well or badly according to our categorisation. Sir William Petty, 17th. century English economist, scientist and philosopher, maintained that '[bees'] souls seem… like the souls of men.'

Sweeney highlights the many dangers bees currently face at our hands, a recent instance of which is the controversial use of neonicotinoid poisons sprayed on crops.

Sweeney contends: 'Wherever they are harmed by our pesticides and suffer from indiscriminate spraying they are 'entitled' to be protected from us… Bees need a legal 'personality' to match ours and their own.' To sum up, bees need justice, but, if as Sweeney says, 'you are designated to be a thing as a matter of law' you are outside the protection of the law. Bees-at-Law, which encompasses so many spheres in which the human animal and the bee try to co-exist, could be unique, and it is highly recommended.

Bees-at-Law by Noël Sweeney.
First published 2017 by Alibi, an imprint of Veritas Chambers.
ISBN 978-1-872724-04-1
Available from Amazon at £51, but at £35 direct from the publisher. It can be ordered from the web site: www.bees-at-law.co.uk ■