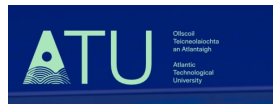




OLLSCOIL NA GAILLIMHE
UNIVERSITY OF GALWAY



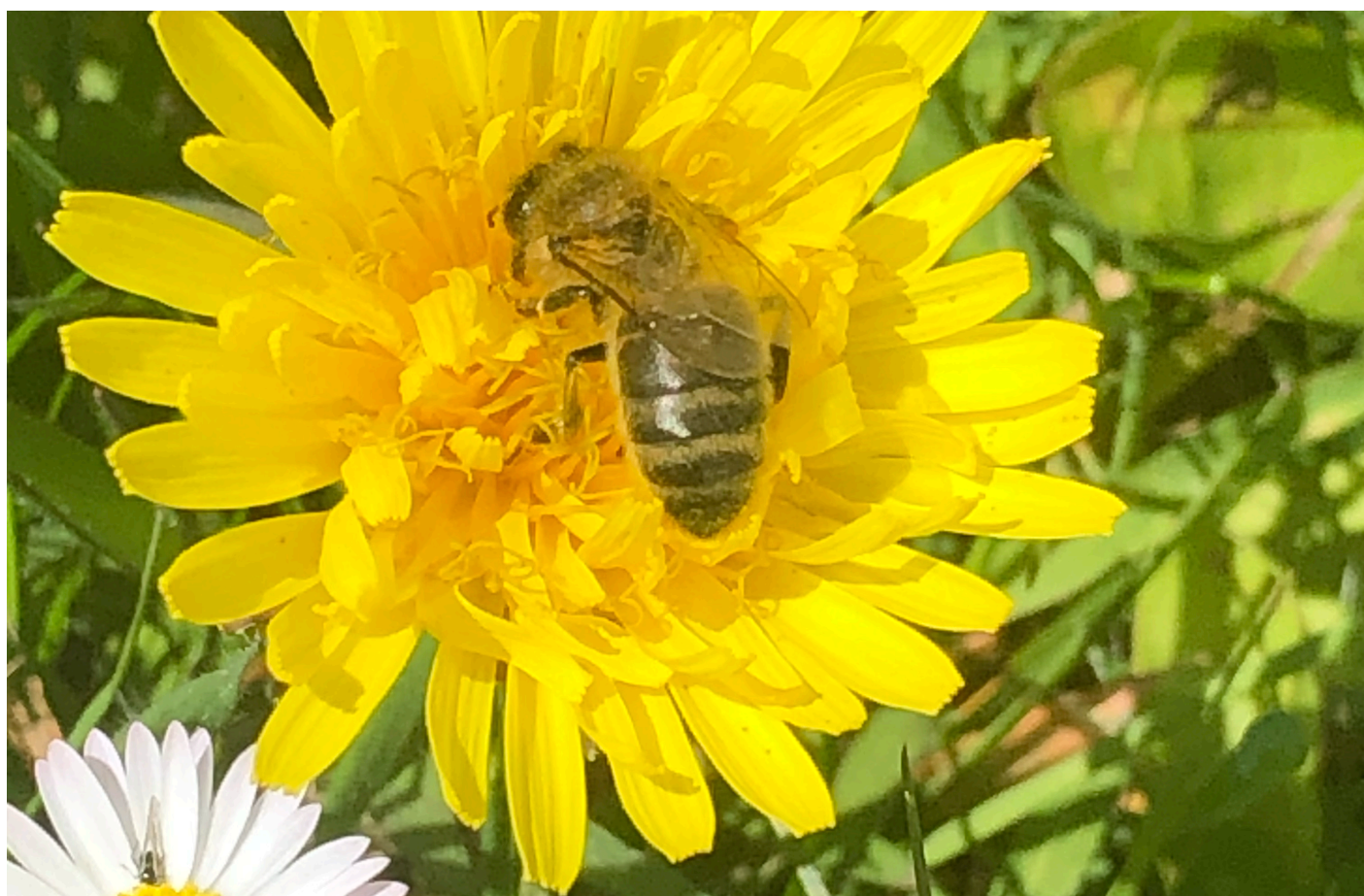
An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine



DCU Ollscoil Chathair
Bhaile Átha Cliath
Dublin City University



NATIONAL APICULTURE PROGRAMME NEWSLETTER



A source of information for the Irish
beekeeper.

Welcome to the National Apiculture Programme (NAP), where we focus on protecting honeybee health and improving beekeeping practices through technical assistance, pest control, and research. Here's what we're doing to keep our bees buzzing and our ecosystem thriving.

Have your say!

Want to get in touch or
share some information?

Contact us

nationalapicultureprogramme@gmail.com

We're tackling the troublesome Varroa mite, and beehive diseases by:

Gathering performance data from treatment-free colonies. The project will provide insights into their health, productivity, and potential as alternative Varroa control methods.

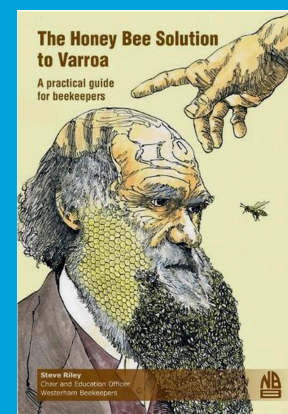
This initiative aims to evaluate whether varroa-resistant or varroa-tolerant native bee colonies can serve as an alternative. It will gather data on the health and performance of such colonies, focusing on key traits like brood patterns, build-up, docility, swarming behaviour, propolis production, and honey yield. The results over the next three years will help to determine their viability for beekeepers.



The National Apiculture Programme seeks to build a community of beekeepers interested in this approach, offer support, and produce queens from daughter colony rearing. Providing nuc's from native Irish colonies that are resistant or tolerant to varroa mites.

During this task several beekeepers across the country will be involved in sharing the progress of their colonies over a three year period. Special thanks go to Alan Forskitt, Ciaran Geoghegan, Colm O'Neill, Eoghan MacGiollaCoda, Prof Grace McCormack, Dr Helen Mooney, Mick Verspuij, Peter Neary, Dr Shelia Faherty. All data generated in this task will be collated by Vickie Henshaw, beekeeping advisor based at University of Galway.

Recommended Reading



The Honey Bee Solution to Varroa by Steve Riley, explains the practical steps beekeepers can take to identify and select for easily observable Varroa-resistant traits in their colonies.

About the author

Steve Riley is the current Chair and Education Officer at Westerham Beekeepers, a club in the south-east of England. He is a member of the "Path to Varroa resistance in the UK" team that launched the education and science website: www.varroaresistant.co.uk in April 2023.

Pesticide persistence levels in commercial beeswax across countries

Egehan Onat Özfen¹, Marcela A. Díaz¹, Darren P. O'Connell¹, Julia C. Jones¹

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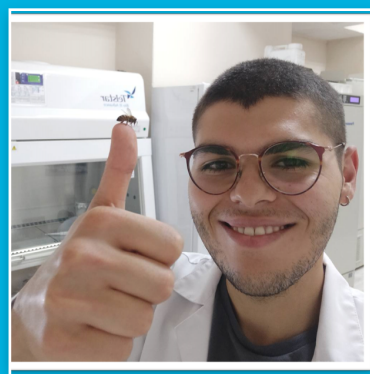
Honey bees play a vital role in pollination, biodiversity, agriculture and thereby human health. However, honey bee colony loss has been increasing in recent years. This loss has been linked to a combination of factors including climate change, pathogens and pesticide exposure.

Beeswax is the most contaminated hive material and its lipophilic chemical profile allows pesticides to persist for over 30 years. Beekeepers often reuse beeswax and it is called “Foundation”. Foundation is the least replaced hive material and it therefore has an increased risk of contamination. This contamination poses several risks such as toxicity to honey bees, evolution of resistance in the major honey bee pathogens and thereby reduced treatment efficiency against pathogens. In addition, pesticides can migrate honey and pollen, and pose a risk to consumers of bee products.



1) Homogenization:
Beeswax is homogenised to reduce particles, which allow us to extract pesticides, before chemical pre-treatments.

Evaluating imported wax comb for potential threats.



You are invited to participate in a research study conducted by Egehan Onat Özfen (pictured above). A PhD student at University College Dublin working with Drs Julia Jones and Darren O'Connell. As part of this research we are asking Irish beekeepers where they source their wax, to gain better understanding of inputs to the Irish beekeeping system. The survey will only take a few minutes and your answers will be kept private.



Persistence of banned pesticides have been reported in different European countries, including in Ireland. This contamination may come from contaminated beeswax because the beeswax trade is not regulated globally. The aim of Irish beekeepers is not producing beeswax and the number of beekeepers in Ireland has been increasing. This trend causes a short supply of beeswax to meet the need of beeswax from international markets. Therefore, most of beeswax in the market is imported from non-European countries such as China and Turkey where banned pesticides are approved for use. Therefore, the detection and elimination of contaminated beeswax foundation will increase honey bee health, ensure the safety of beekeeping products and promote a sustainable future with a One Health approach.



3) Pesticide Detection Instrument: This machine is Ultra-High-Performance Liquid Chromatography. This machine detects over 300 pesticides, including banned pesticides and the most commonly used pesticides against Varroa mites.

To help achieve this, we conducted a survey in national beekeeping conferences and as well as an online survey that distributed to all beekeeping associations across Ireland. In accordance over 250 responses, we have collected samples from 10 European and non-European countries.



2) Pre-treatment of samples with chemicals (Extraction): To extract and increase possibility of pesticides, samples with is treated with chemicals. (From dirtier to cleaner) This enable us to use beeswax in the next stage with the machine opposite.

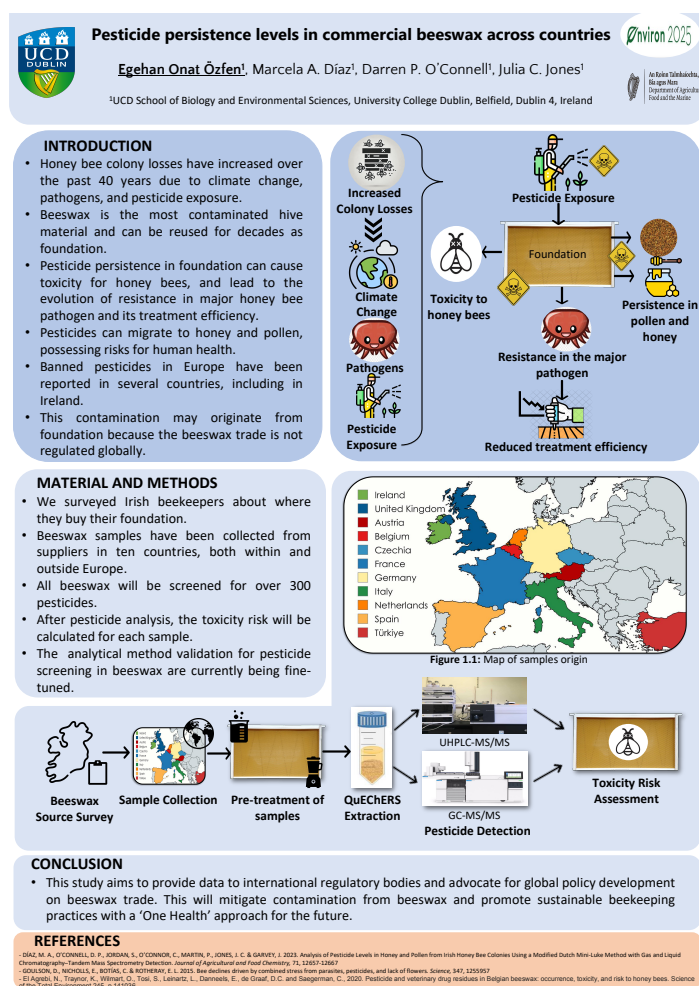
Egehan Onat Özfen
working at Department of
Agriculture, Food and the
Marine (DAFM) of
Ireland.



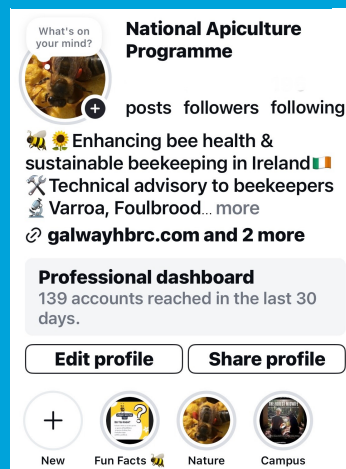
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Department of Agriculture,
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Next, we will analyse all samples by chromatographic techniques to screen over 300 pesticides, including banned pesticides in Europe. After the pesticide analysis, we will calculate toxicity risks for each sample.

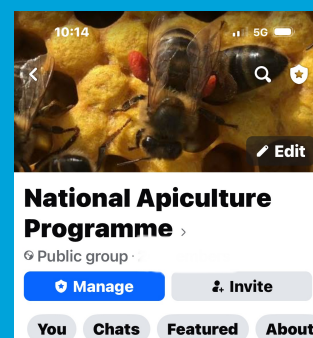
We aim to provide international data to regulatory bodies and advocate for global policy development on beeswax trade. This mitigates beeswax contamination and promotes sustainable beekeeping practices with a 'One Health' approach for the future.



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