The National Apiculture Programme 2023-2027

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

Funded by the Department of Agriculture, Food and the Marine and the European Union.

An Introduction to the project, tasks involved and what we have achieved so far in **Task 4**

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NAP Tasks 2023-2027

Lead by teams in UCD and University of Galway

TASK 1 To provide technical and advisory assistance to beekeepers and beekeeping organisations
TASK 2 Provision and distribution of free-beekeeping resources related to beekeeping in Ireland
TASK 3 Combat beehive invaders and diseases, particularly Varroosis(a): Field trials of alternative *Varroa* control methods and tests of co-infection of emerging pathogens
TASK 4 (b): *Varroa* treatment-free colony assessment and daughter colony rearing
TASK 5 (c): Pollen nutrition quality evaluation
TASK 6 (d): Nutrition – functional metagenomics
TASK 7 Continue Ireland's participation in the COLOSS network
TASK 8 Investigation of possible reasons for colony losses (a): microbiome perturbation
TASK 9 Investigation of possible reasons for colony losses (b): pesticides in comb wax
TASK 10 Establish incidence of American Foulbrood and European Foulbrood across Ireland, and determine factors that lead to clinical infections
TASK 11 Test of the American Foulbrood vaccine

Task 4 Treatment Free pilot study

Aim: evaluate treatment free colonies:

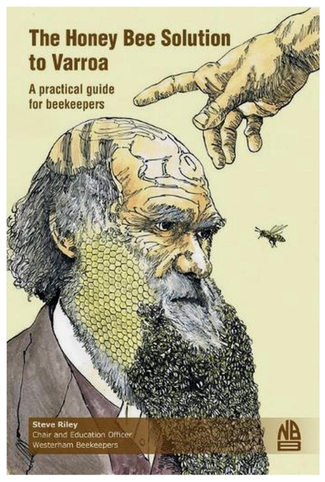
- Brood Pattern
- Docility
- Steadiness on the comb
- Swarming
- Propolis production
- Honey yield

Introduction to Treatment- free (TF)

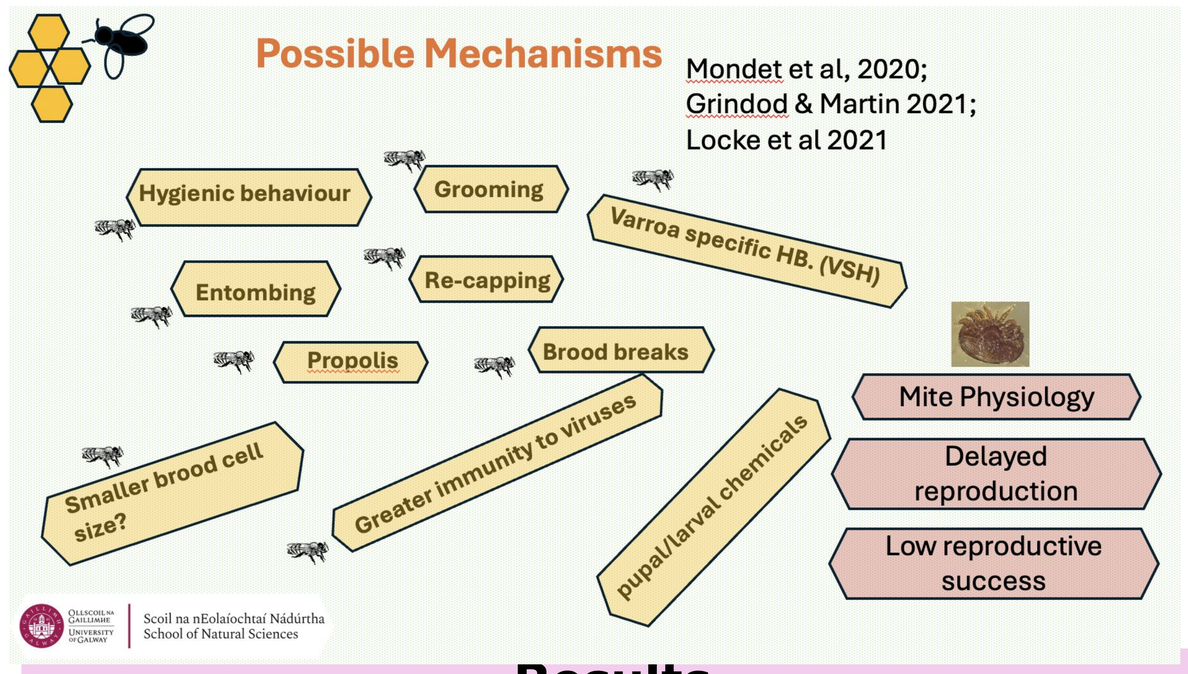
- Hygienic behaviour evolved as part of honey bee social immunity.
- Involved in resistance to American foulbrood and chalkbrood- they can detect, uncap and remove diseased brood from the nest before the organisms reach sporulating stage.
- Traits could have been coopted to deal with Varroa
- Varroa resistance honey bee populations/strains present across the world
- Trend of increasing numbers of beekeepers being treatment free

Task 4 Methods

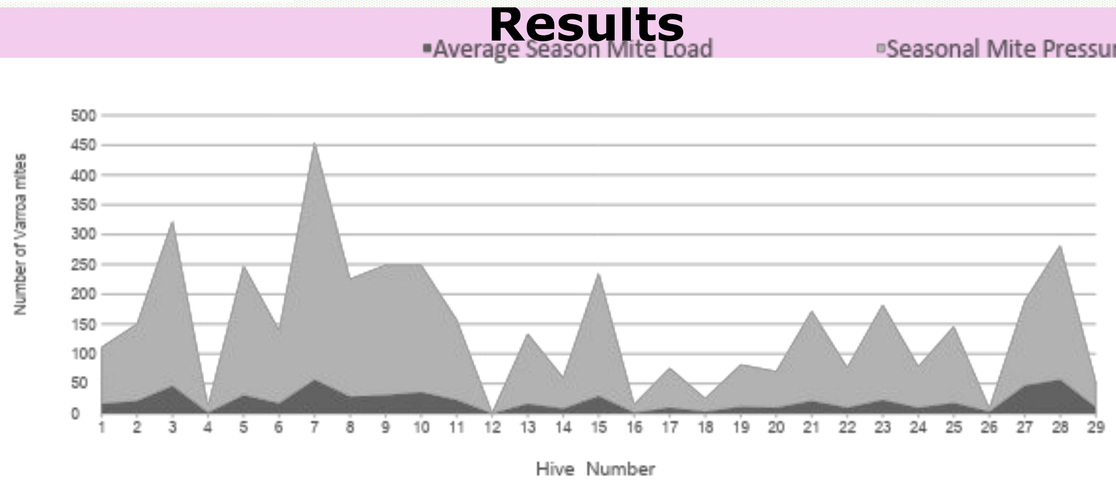
1. Colonies established in eight apiaries from TF stock
2. Bottom board debris examined from all the hives on a monthly basis. Varro count and observation of hive activity
3. Alcohol wash as second method of varroa count
4. Examine brood frames for evidence of uncapping/recapping behaviour



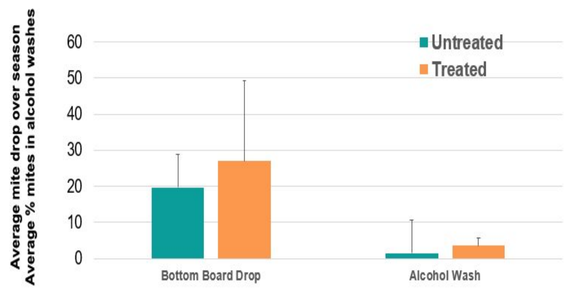
Processing of bottom board samples & collection of samples of brood and bees to send to Mary Coffey at the DAFM Diagnostic services



Results



Varroa in Untreated Versus Treated Colonies



Average daily mite drop from Jun-Dec 25 from mite boards and alcohol wash. Photo of uncapping behaviour

Variable Varroa loads across colonies. TF slightly lower mite load than treated.
Chalkbrood present in all colonies, Nosema in some. AFB in two
No statistically significant association between mite load and honey yield.
One hive with daily drop of 35 mites in Sept 2025 yielded 53Kg honey

1. Recapping rare	2. Grooming present	3. Uncapping common	4. queen issues (low mite levels)
5. Pupal parts present but not abundant	6. Thriving or not?	7. Chalkbrood common	8. DW rare

NAP Collaborating Institutions

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