



Scottish Government
Riaghaltas na h-Alba



BEEKEEPING EDUCATION MODULES

Varroa destructor

These presentations are funded by the Scottish Government as part of Scotland's Honey Bee Health Strategy

Managing Varroa





AIMS

We as a team aim to:-

1. Provide **education** on varroa including – recognition, biology, impact, monitoring, control/ treatments, medicine records, BeeBase registration
2. Provide **advice and support** for beekeepers on varroa



Varroa

Varroa destructor



- ▶ Varroa - parasite that feeds on fat bodies and haemolymph
- ▶ It feeds on the brood and adult bees
- ▶ Adult female mite enters before the cell is capped
- ▶ She feeds on the immature bee and lays eggs
- ▶ Female is oval, brown/red, 8 legs

Monitoring For Varroa



Why we need to manage numbers

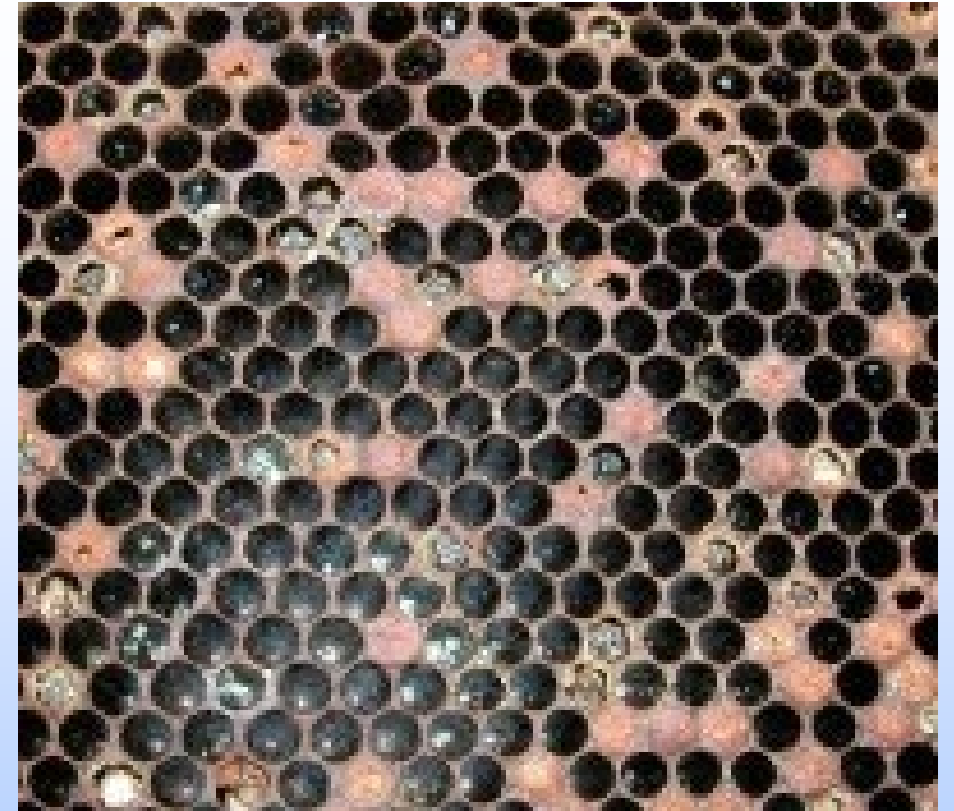
- ▶ If Mite numbers are low, there is no obvious damaging effect on the colony
- ▶ Mite populations will increase rapidly if not properly managed.
- ▶ 1000 + will cause colony damage depending on the size of the hive.
- ▶ Colonies then lose social organisation and collapse
- ▶ Monitor at least 4 times a year



Monitoring –Natural drop

- ▶ Use mesh floors and varroa boards
- ▶ High winds—secure floor!
- ▶ Can use Vaseline for windy sites
- ▶ Check and clear the boards regularly
- ▶ Natural drop is measured in mites/day
- ▶ (above 10/day = bad)
- ▶ 1-2 a week drop indicates good control
- ▶ This method can be misleading due to under counting if the hive is actively rearing brood.





Varroa – Impact and issues

Varroa, Viruses and other pathogens

- ▶ Bee viruses can be naturally present in the bee population at a low level without causing significant harm
- ▶ As varroa feed they take essential nourishment away from the developing bee
- ▶ The mite, acting as a vector, can aid virus spread



(PMS) Parasitic Mite Syndrome



The signs of Varroosis / Parasitic mite Syndrome

General signs of varroosis:

- Mites visible on adult bee or on combs
- Deformed Wing disease are symptoms apparent
- Stunted, deformed young adult bees
- Mites visible on pupae (uncapping fork)
- Mites in hive floor debris.



Deformed Wing Virus (DWV)

The main contributor to winter losses is:

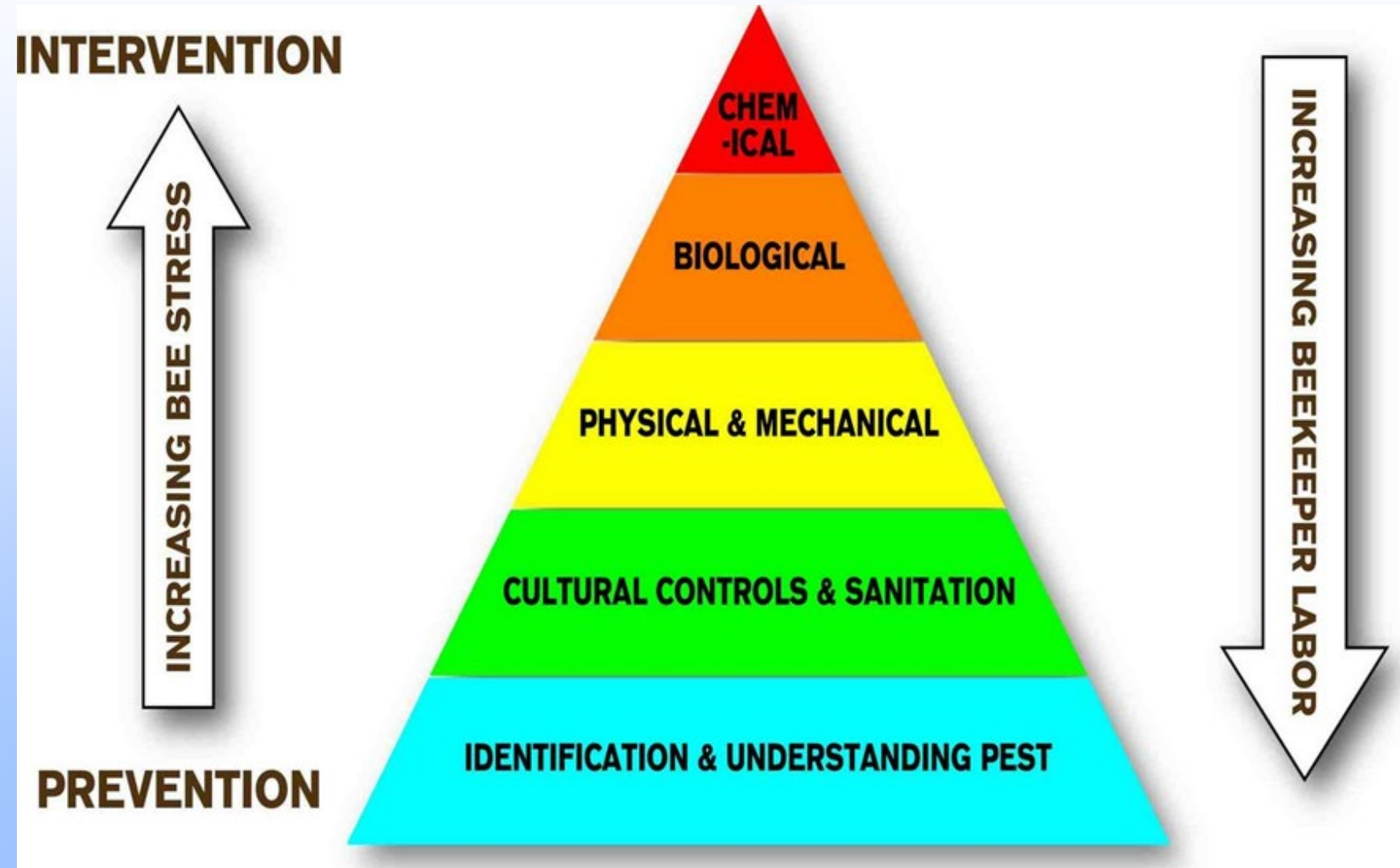
- They reduce the lifespan of infected bees

Then you will see:-

- Disrupts wing development
- Wings shredded or 'burnt'
- Bees unable to fly
- Ejected from hive
- Weakened colony



Integrated Pest Management (IPM)





What is IPM?

‘A combination of methods used at different times’

- ▶ Control at several points makes it harder for mites to reach damaging levels
- ▶ Including a management method can slow mite population growth and reduce the need for varroacides
- ▶ Using two or more unrelated varroacides will delay the onset of resistance
- ▶ Control strategy can be varied according to infestation level



Biotechnical Methods



Biotechnical Methods

- Regulation-free, 'Organic'
- ...but potentially less effective
- ... and more labour intensive
- Open-mesh Floors
- Drone uncapping
- Queen trapping
- Shook swarm





Managing Varroa

Chemical controls



Chemical controls

- ▶ Must be VMD approved
- ▶ Use at correct times for full efficacy
- ▶ Always read the Instructions
- ▶ Use safety equipment if required

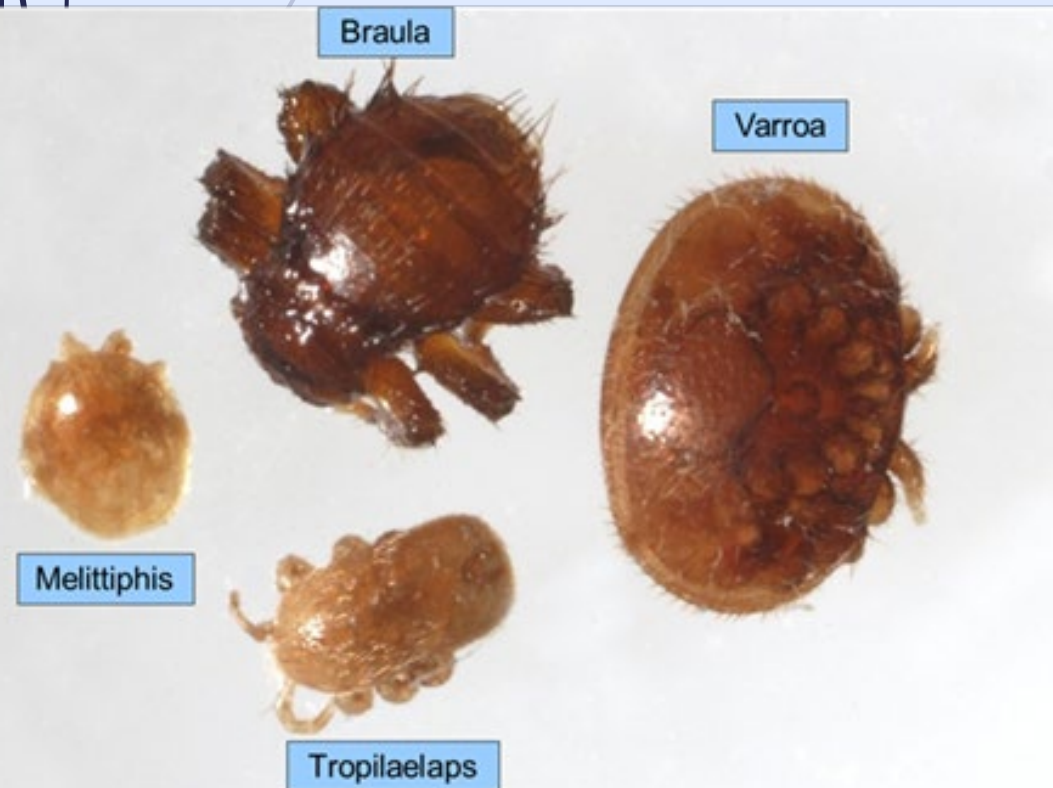
Table 1: Varroacides authorised for use in honey bee colonies in the United Kingdom

Name	Active ingredient	Mode of application	When to apply	Significant features
Apiguard (Vita Europe)	Thymol	Place open tray above brood nest	Spring or late summer; for 14 days (repeat x1)	Ensure OMFs are closed. Most effective when outside temp >15°C
Apilife Var (Chemicals LAIF)	Thymol	Break tablet into 4 pieces and place in corners of the brood box	Spring or late summer; for 7 to 10 days (repeat x1)	Ensure OMFs are closed. Most effective when outside temp >15°C
Thymovar (Andermatt BioVet)	Thymol	Cut one strip into two and place on top bars of frames but not above brood nest	Spring or late summer; for 3 to 4 weeks (repeat x1)	Ensure OMFs are closed. Most effective when outside temp >15°C
Formic pro (NOD Apiaries)	Formic acid	Place strips on top bars near the outer edges of the brood nest	May to August	Ensure colony is well ventilated and contains >6 frames of bees. Do not use when outside temps exceed 30°C
Api-Bioxal (Chemicals LAIF)	Oxalic acid	Trickling: 5ml per frame space of bees Sublimation: Use 2.3 g	Winter & broodless periods	Lethal to open brood. Ensure outside temp is over 3°C. Very effective
Oxuvax (Andermatt BioVet)	Oxalic acid	Trickling: 5ml per frame space of bees Spraying: 4 to 5 sprays per side of frame	Winter & broodless periods	Lethal to open brood. Ensure outside temp is over 3°C. Very effective
OxyBee (Veto Pharma)	Oxalic acid	Trickling: 5ml per frame space of bees	Winter & broodless periods	Lethal to open brood. Ensure outside temp is over 3°C. Very effective
DANY's Bienenwohl powder (DANY Bienenwohl GmbH)	Oxalic acid	Trickling: 5ml per frame space of bees	Winter & broodless periods	Lethal to open brood. Ensure outside temp is over 3°C. Very effective
VarroMed (BeeVital)	Formic acid and oxalic acid	Trickle between brood frames; 5 ml per frame space	Spring, autumn or winter	Ensure outside temp is over 3°C
Apivar (Veto Pharma)	Amitraz	Place plastic strips between frames close to the cluster, but more than 2 frames apart	Any season for 6 to 10 weeks, but not during honey flow	Most effective when less than 2 frames of brood and at >10°C
Apistan (Vita Europe)	Tau-fluvalinate	Place one strip between frames 3 & 4, and the other between frames 7 & 8	Autumn or early spring; for 6 to 8 weeks	Should only be used once every 3 to 5 years
Apitraz (Laboratorios Calier)	Amitraz	Place plastic strips between frames more than 2 frames apart	Autumn or early spring; for 6 to 10 weeks	Most effective when less than 2 frames of brood and at >10°C

Good husbandry



- Good husbandry should be the starting point for managing varroa or – if varroa-free - preventing the spread.
- The health of your bees is important. Make sure you can recognise the signs of varroa infestation and monitor Varroa levels at different times of the year.
- Minimize the effects of robbing and drifting and keep the hives well-spaced with entrances facing in a range of directions.
- The aim is to keep strong colonies.



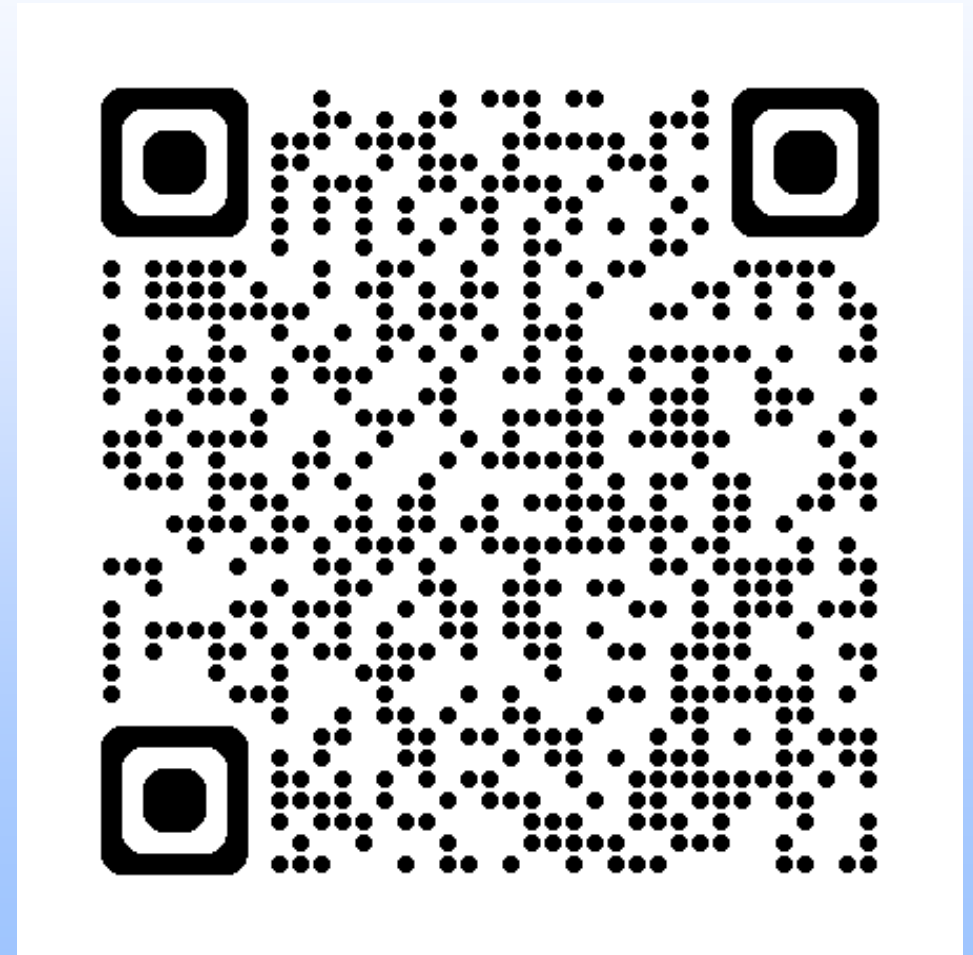
Summary of methods for treating Varroa

Method	Advantages	Disadvantages
Authorised Varroacides	<ul style="list-style-type: none">• Proven efficacy when used as directed.• Proven safety when used as directed.• Convenient to use	<ul style="list-style-type: none">• Mite may develop resistance if incorrectly used.• Residue issues if misused
Integrated Pest Management	<ul style="list-style-type: none">• Can reduce the need for Varroacides• Reduces development of resistance in mites	<ul style="list-style-type: none">• Requires monitoring to adapt to changing infestation levels• Can require a higher level of knowledge and beekeeping techniques.
Biotechnical methods	<ul style="list-style-type: none">• Can be combined with summer management• Inexpensive or free	<ul style="list-style-type: none">• Time consuming• Higher level of beekeeping skill required• Not sufficient by itself• Misuse can harm colonies
Treatment Free Beekeeping	<ul style="list-style-type: none">• Inexpensive or free	<ul style="list-style-type: none">• Not recommended for beginners• Can be harmful to bees, beekeepers and other pollinators if mismanaged

Timing is key

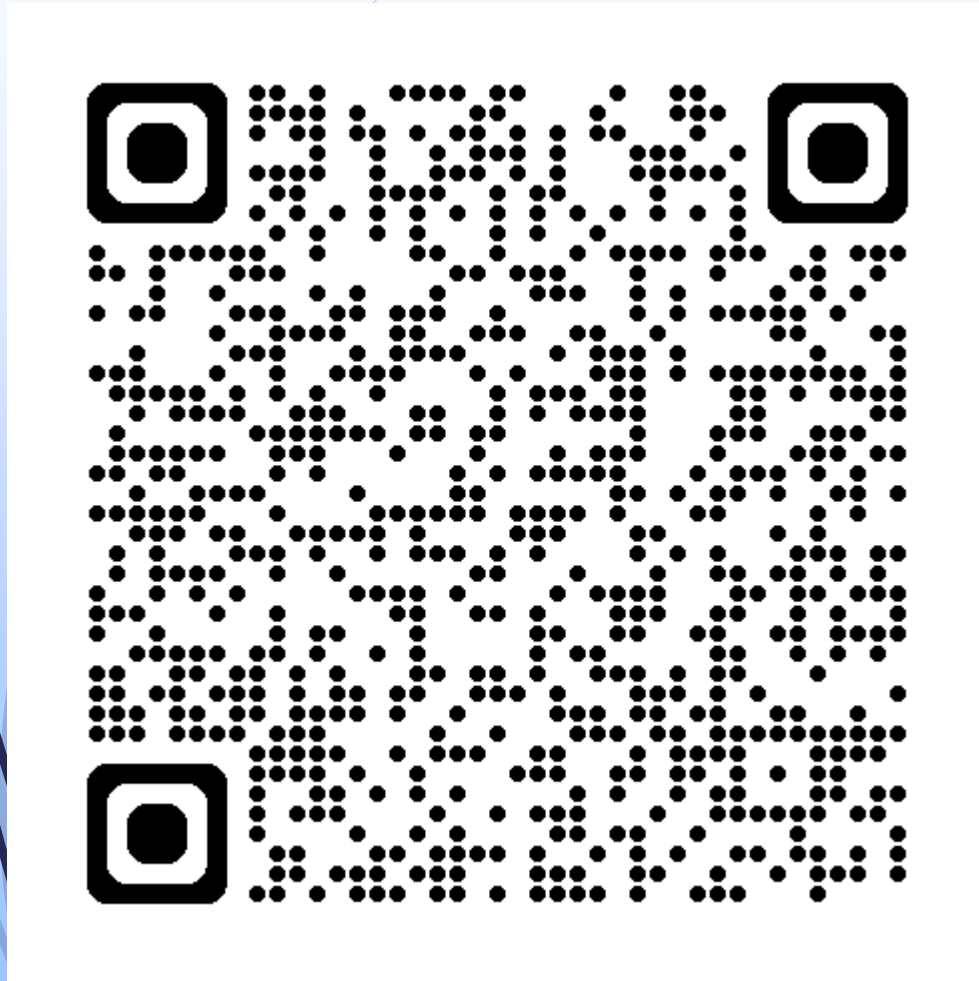


- ➔ Our winter bees need to be strong and treated on time



Varroa Learning Package

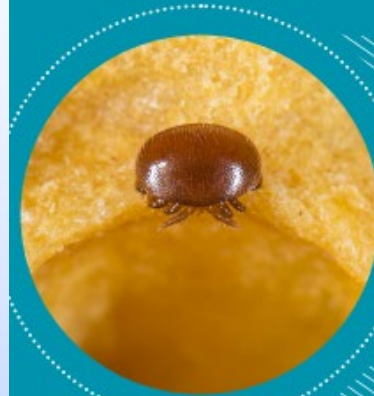
- ▶ [Scottish-Varroa-Learning-Package.pdf](#)
(nationalbeeunit.com)



SCOTTISH VARROA LEARNING PACKAGE



This booklet is funded by the Scottish Government as part of the Honey Bee Health Strategy in partnership with SRUC and the Bee Health Improvement Partnership





Key messages

- Varroa can have a devastating impact on a colony!
- Regular monitoring is an important part of good varroa management
- Plan an effective year-round management program to maintain low mite levels
- Keep up to date with latest treatments
- Poor varroa control can also have a negative impact on other colonies in the vicinity of your apiary

Resources available: Scottish Government and SRUC



gov.scot

Contact: Bees_Mailbox@gov.scot

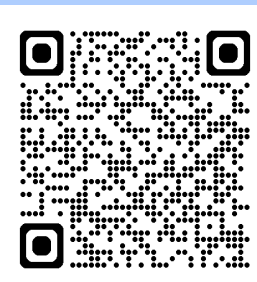
[Scottish Government Honey Bee Health Strategy 2022-2032](#)



[Scottish Government Honey Bee Implementation Plan](#)



[SRUC Bee Podcasts](#)



Resources Available – Others

[Scottish Beekeepers Association](#)



[Bee Farmers Association](#)



[BeeBase – Information for Scottish Beekeepers](#)

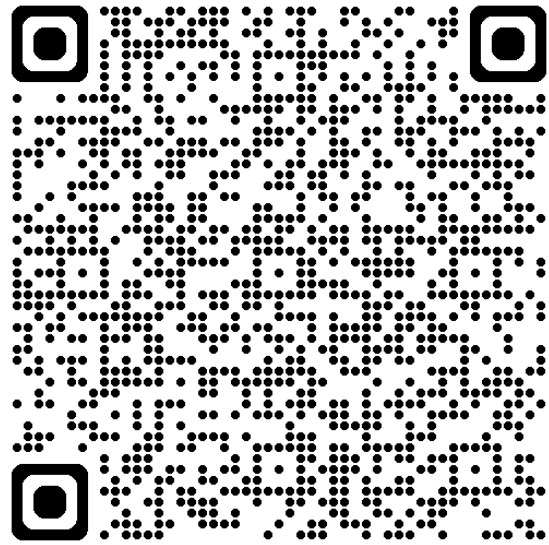


[Product Information Database - Currently authorised products](#)



BeeBase Managing Varroa

► Managing Varroa



Animal &
Plant Health
Agency

The National Bee Unit

Managing *Varroa*





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