

WINTER PREPARATIONS

BY

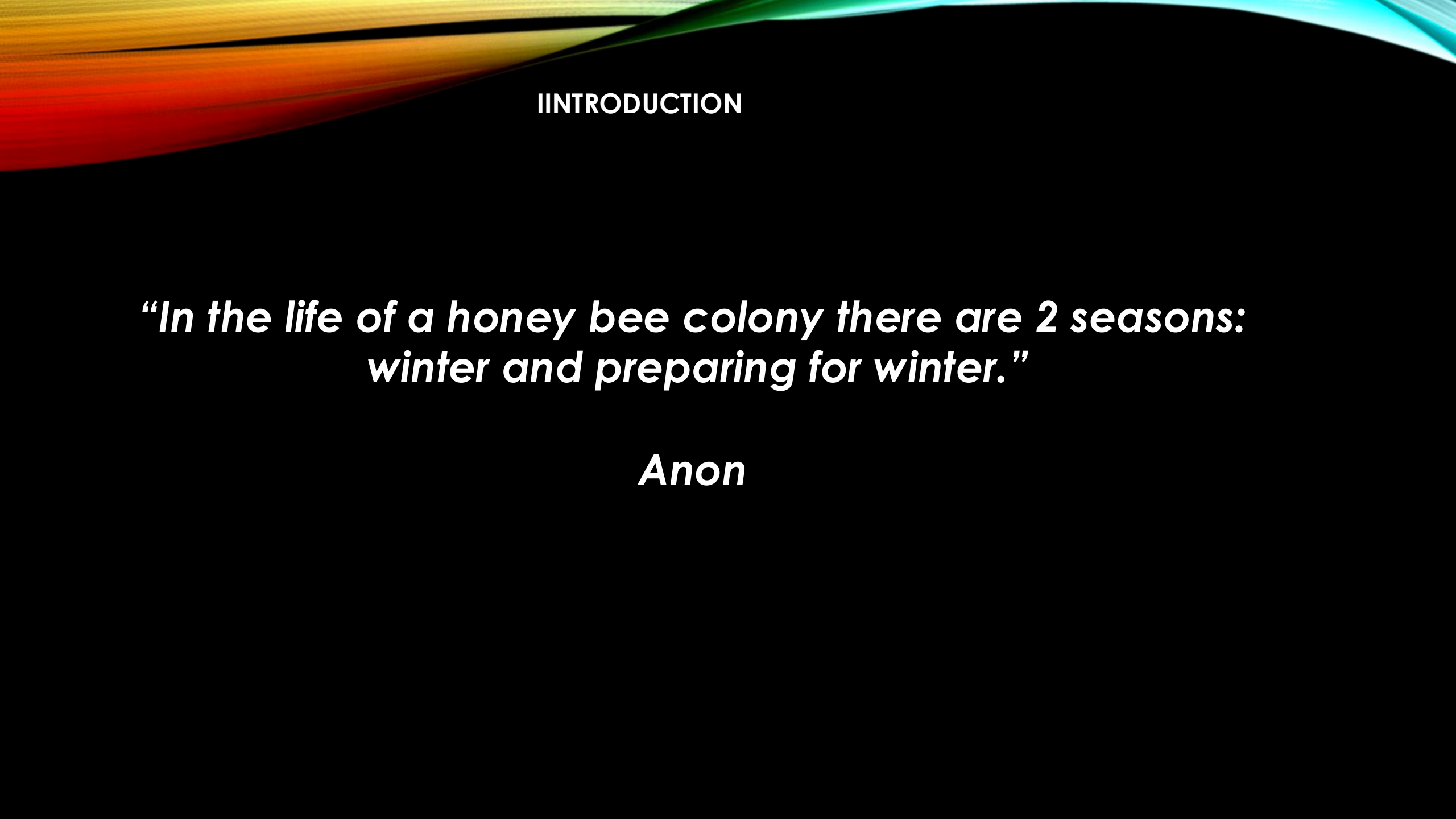
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Education Officer

FDBKA





II INTRODUCTION

***“In the life of a honey bee colony there are 2 seasons:
winter and preparing for winter.”***

Anon

NATURAL ANNUAL CYCLE

Spring build-up

Swarm – broodless period

Maximum foraging force in July- big colonies

Late summer/early autumn queen starts to lay winter bees

Autumn colony reduces in size

Winter brood production reduces or stops

Very early spring queen starts laying again –

NEEDS ENOUGH HEALTHY WINTER BEES FOR UP TO 6 MONTHS



SUMMER BEES

Live about 6 weeks



WINTER BEES Live up to 6_months



PRODUCTION OF WINTER BEES

- Production of winter bees is stimulated by a dearth of pollen in late summer/early autumn ⁶
- A good supply of diverse pollen in spring and autumn is needed
- Giving pollen supplement or substitute in late summer/early autumn does not make winter bees
- It produces summer bees that die in the next few weeks leading to colony collapse

WINTER BEES ARE DIFFERENT FROM SUMMER BEES

Larger fat body storing enough glycogen, proteins and lipids to survive without fresh forage

Higher levels of Vitellogenin – complex, but delays ageing

The hypopharyngeal gland reactivated to produce brood food in spring

Winter bees don't work as much as summer bees – no foraging, no brood rearing until spring

RISK TO WINTER BEES

Winter bees need to be, healthy well-fed and varroa damage-free

Varroa attacks the larvae that are destined to be winter bees and they die very young from malnutrition and the viruses vectored by varroa



VARROA IS ONE OF THE MAIN CAUSES OF WINTER LOSSES^{1,2}

ENEMY NUMBER ONE



MANAGED COLONIES

- The problem is...
- Bees naturally swarm in spring or early summer
- Due to swarm prevention no broodless period
- Varroa population continues to grow
- bigger the colony – greater varroa population – higher risk
- Nosema continues to increase
- Climate change so no broodless period in winter
- COLONY COLLAPSES SUDDENLY ³

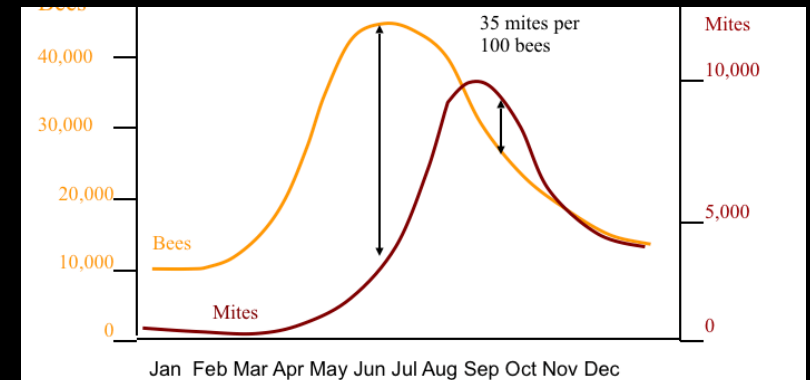
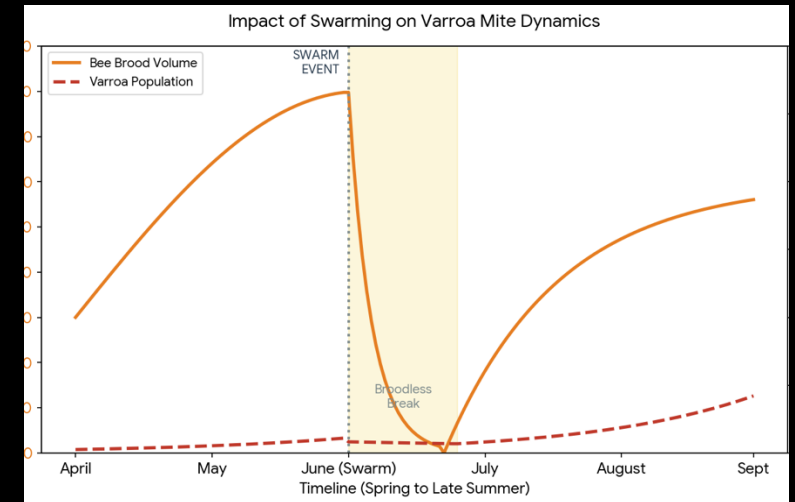
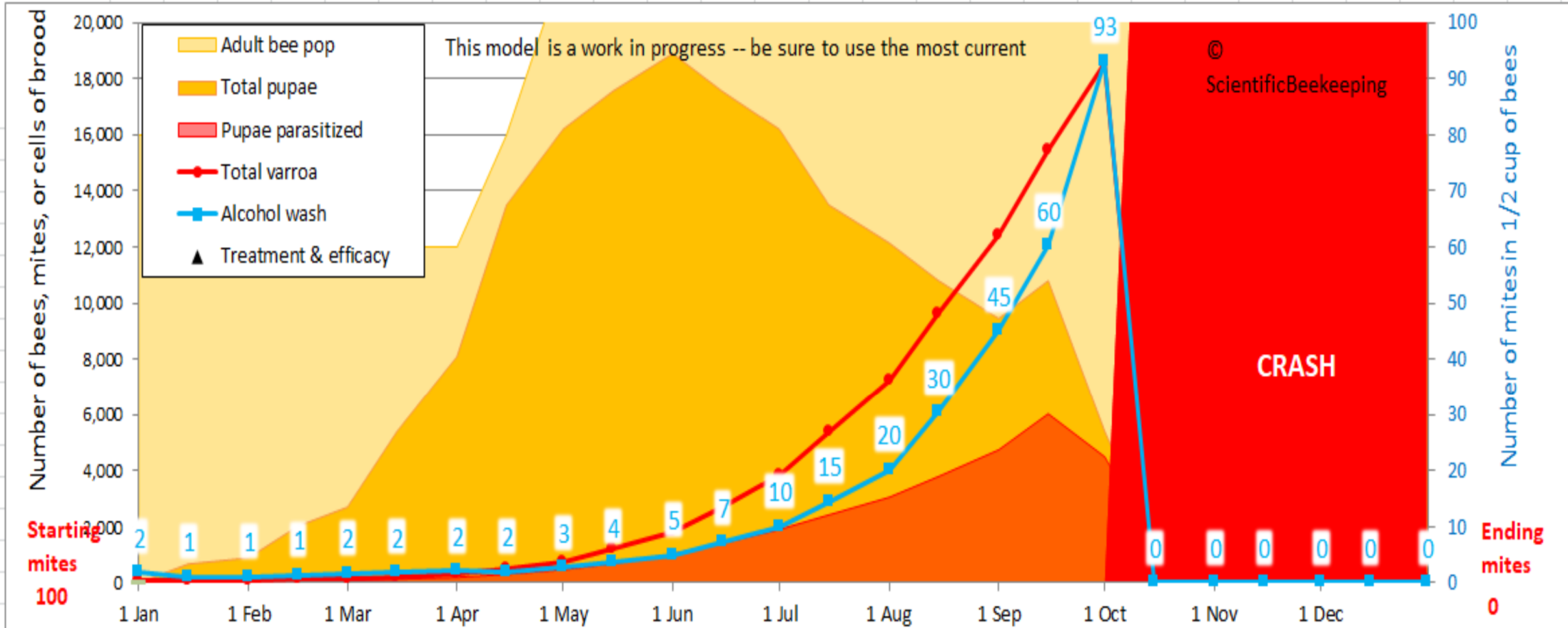


Figure 1. Simplified bee and mite population growth curves for a temperate climate. The mite growth curve lags behind the bee curve. Note how the number of mites per hundred bees greatly increases in fall. A colony is unlikely to survive a fall infestation rate this high.

COLONY SWARMING PREVENTED

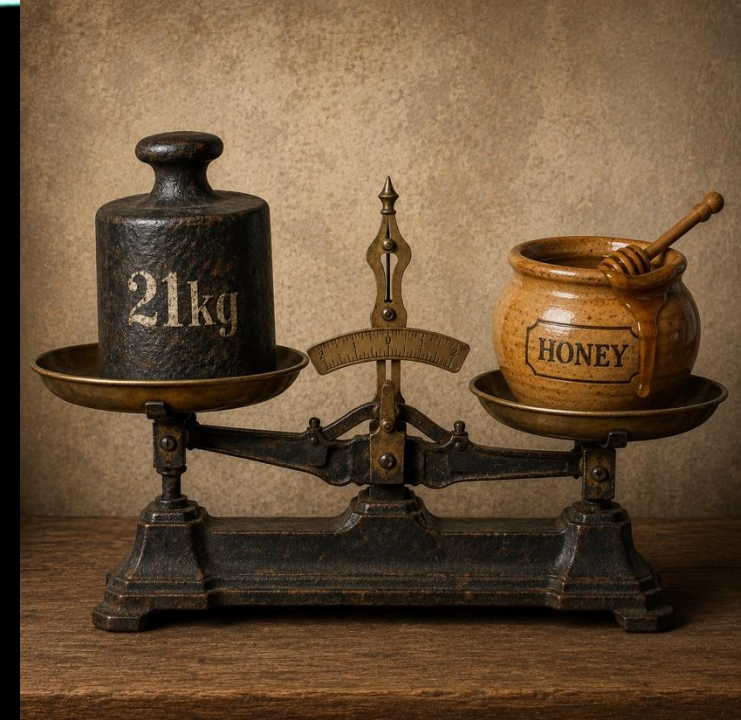
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- WINTER NUTRITION



WINTER NUTRITION

- Average colony needs about 21 kg to survive until next spring⁴
- 3 x capped brood frames of honey 9 kg
- 1 x full super of capped honey 12 kg
- Total 21 kg
- Food needs to be accessible:
- Remove queen excluder so the colony can move upwards with the queen
- Make small communication holes in the brood frame so they can move sideways onto the comb with stores to prevent isolation starvation
- Honey and pollen contain all the nutrients needed to produce and maintain a healthy population.
- Sugar syrup is the equivalent of junk food and is deficient in most vital nutrients⁵
- Monitor stores regularly all winter and
- FEED SUGAR SYRUP OR FONDANT IF THEY DON'T HAVE ENOUGH OF THEIR OWN FOOD



VARROA MONITORING AND TREATMENT

Summer As soon as the honey harvest has been taken off or the flow stops:

- Test for varroa with alcohol wash or sugar roll
- Treat if more than 2% infestation
- Test again at end of treatment
- Treat again if more than 2 %. Infestation

Winter End November treat with Oxalic acid or Varromed

Spring as soon as weather warm enough for inspection

- test with alcohol wash or sugar roll
- Treat if more than 2% infestation



REGULAR MONITORING AND TIMELY TREATMENT ARE KEY TO AVOIDING VARROA/VIRUS DAMAGE

- **OTHER ACTIONS**

- **Ensure** all equipment is in good condition and robber proof
- Check insulation on wooden hives
- Good apiary hygiene
- Reduce entrances in late summer to help guard bees defend against wasps and robbers
- Put out selective traps if wasps are becoming unmanageable
- Fit mouseguards in October
- Fit insulation
- Protect against green woodpecker damage
- Treat stored frames for wax moth



Robbing frenzy









WAX MOTH TREATMENT

Freezer at 18 deg C for > 48 hours

Fumigation with 80% acetic acid for 7 days

Store in a cool place

Results

Purchased Aug 2024



Gefahren- u. Sicherheitshinweise
H314 Verursacht schwere Verätzungen der Haut und schwere Augenschäden. P405+P102 Unter Verschluss aufbewahren. Darf nicht in die Hände von Kindern gelangen. H261 In Berührung mit Wasser entstehen entzündbare Gase. P260 Staub / Rauch / Gas / Nebel / Dampf / Aerosol nicht einatmen. P262 Nicht in die Augen, auf die Haut oder auf die Kleidung gelangen lassen. P284 Nach Gebrauch Hände gründlich waschen. P281 Laugenbeständige geeignete Schutzkleidung verwenden. P303+P361+P353 Bei Berührung mit der Haut (oder dem Haar): Alle kontaminierten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen / duschen. P305+P351+P338 Bei Kontakt mit den Augen: Einige Minuten lang behutsam mit Wasser ausspülen. Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter ausspülen. P314 Bei Unwohlsein ärztlichen Rat einholen / ärztliche Hilfe hinzuziehen. P101 Ist ärztlicher Rat erforderlich, Verpackung mit dem Kennzeichnungsetikett bereithalten. P301+P310 Bei VERSCHLÜCKEN: Sofort Giftinformationszentrum oder Arzt anrufen. P342+P311 Bei Symptomen der Atemwege: Giftinformationszentrum oder Arzt anrufen.

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SUMMARY

Careful preparation now can help to prevent the heartache of colony loss

Colonies need good quality diverse pollen in spring to produce winter bees

Feeding pollen supplement now does not produce winter bees

Colonies need 21kg of good quality food to get through winter and next spring

Monitor their stores all winter by hefting or weighing and feed syrup or fondant if they run out.

Robbing can weaken or even wipe out colonies, especially nucs

Wax moth can destroy comb and damage equipment if left untreated

VARROA IS THE MOST COMMON CAUSE OF WINTER LOSSES

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6. Dwindling pollen resources trigger the transition to broodless populations of long-lived honeybees each autumn
HEATHER R. MATTILA, 1 GARD W. OTIS



“THANK YOU FOR LOOKING AFTER ME”

