



**Common Honeybee Pests and Diseases**




Introduction to Beekeeping  
Moray Beekeepers Association



PhotoDisc.com - 23826789

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**Common Honeybee Pests and Diseases**



How do I know if my bees are healthy?  
What diseases and pests am I most likely to come across?  
How will I recognise bee diseases?  
What can I do to prevent the problems?  
What can I do to treat any problems?  
How do I get help to recognise or deal with bee health problems?

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**Hygiene**




*Disease is caused by pathogens and stress!!*

- Clean bee suits and other clothing
- Clean gloves
- Clean hive tools etc.
- Clean & well-ventilated hives
- Replace brood comb regularly



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## Good Apiary Practice



- Keep apiary clean
- Hive open for minimal time
- Don't squash bees
- Don't feed honey
- Prevent robbing
- Don't use old comb from doubtful source
- Quarantine swarms and bought colonies

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## Healthy brood

***Always check when inspecting a colony***



Courtesy of Fera

- Not patchy
  - Gaps
  - empty cells among sealed brood
- Uniform brood pattern
- Biscuit, slightly domed and dry caps
- Moist pearly white "C" shaped larva
- Larval segments clearly defined

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## Unhealthy brood



- Patchy
  - Cells unused amid brood
- Brood pattern not uniform
- Other signs to look out for
  - Dark, sunken, damp, perforated cappings
  - Larva in odd positions
  - Dead larvae
  - Blackened larvae

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## Brood diseases



### Chalk Brood

- Larvae die in cells
- Look like lumps of chalk
- Debris on floor

*Fungus - requeen, change brood frames*

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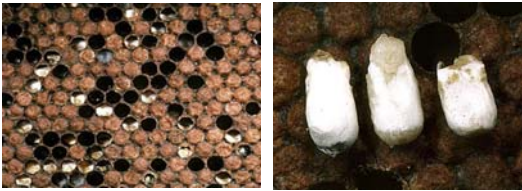
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## Chalkbrood



Caused by a spore forming fungus *ascosphaera apis*, which feeds on developing larvae resulting in death after capping. perforated cappings over cells containing hard, white or mottled grey chalklike remains (like a mummy), also found on hive floor or at hive entrance



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## Chalk Brood on floor of hive



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**Notifiable Brood Diseases**



- American Foul Brood (AFB)
- European Foul Brood (EFB)
- If either of these is suspected you must call in the local Bee Inspector for diagnosis, and impose a standstill on the apiary.
- Excellent publication by National Bee Unit/BeeBase

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**American Foul Brood**



- Spore Forming Bacterium (*paenobacillus larvae*)
- Extremely resilient and infective spores
- Can remain viable for many years
- Bacterium will germinate when back in contact with honey bee larva
- Spores accidentally fed to larva by nurse bees.
- Kill by consuming larval body tissues
- If infection confirmed – colony destroyed

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**American Foulbrood Signs**





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### European Foul Brood



- Bacterial disease *Melissococcus plutonius*
- Accidentally fed to larva by nurse bees in contaminated brood food
- Multiply in larval gut, competing for food, causing larva to starve to death.
- Normally just before cell due to be sealed
- If heavy infection, destruction as for AFB
- If light infection, a shook swarm on to clean combs in a clean hive is preferred.

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### European Foul Brood




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### Infection Zones

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## Varroosis

Parasitic mite (*Varroa destructor*)

- ~ 1.5 x 1 mm
- Lives on haemolymph
- Breeds in capped larva
- Mates with brother
- Kills colonies

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## Varroa Mite






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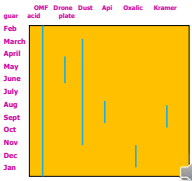

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## Integrated Bee Health Management

- IBHM or IPM (Integrated Pest Management)
- Range of methods to attack mites
- Non medicinal
  - Open mesh floors
  - Drone brood removal

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## Varroa on Monitor Board




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## Uncapping Drone Brood




- Drone larvae pulled out to inspect for varroa.

• Photos courtesy of Beebase

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## IBHM – Therapies

Integrated Bee Health Management

- Oxalic Acid
- Amitraz
- Formic acid
- Essential oils
- Thymol (Apiguard)




- Pyrethroids
  - Apistan, Bayvarol



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## Adult Bee Diseases

- Nosema
- Acarine
- Poisoning
- Viruses



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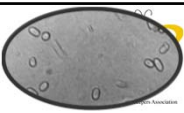
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## Nosema

**Microsporidian – Nosema spp**

- Spore forming fungus (microsporidian)
- Invades gut of adult bees
- Damages epithelial cells and reduces digestion of pollen
- Associated with dysentery
- Diagnosis - microscopy x400,



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## Signs of Dysentery

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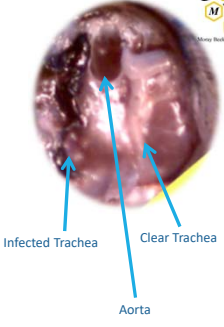


### Acarine



**Mite – *Acarapis woodii***

- Infests 1<sup>st</sup> thoracic trachea
- Breeds there
  - blocks with debris
- Mites move to young bees



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### Poisoning



**Agricultural sprays, pest controllers, malicious, beekeeper error**

- Many dead/dying bees outside hive
- Tongues extended
- Loss of flying bees
- Dead brood?



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### Virus Diseases



- Bees have their own viruses
- Often inapparent in a healthy colony
- Varroa feeds on bee's blood, triggering and spreading virus disease
- Commonest is Deformed Wing Virus
- Control Varroa

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**Statutory requirements**

- Bee diseases /disorder
  - Inform Appointed Bee Inspector [SGRPID.elgin@gov.scot](mailto:SGRPID.elgin@gov.scot)
  - Submit sample
  - Standstill orders
- AFB
- EFB



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**Other Notifiable Bee Pests**

- Tropiclaelaps Mite
- Small Hive Beetle
- Asian Hornet



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**Other pests of Honey Bees**

- Wax Moth
- Wasps and Hornets
- Mice
- Badgers
- Green Woodpecker



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### Wax moth

**Greater & Lesser Wax Moth**

- Infest brood and old combs
- Destroy wax and leave 'silk' trails
- Greater Wax Moth
  - Prefers brood comb
  - When pupating, chews grooves into the wooden hive surfaces
- Lesser Wax Moth
  - Prefers stored supers
- Treat stored frames
  - Freeze
  - Acetic acid fumigation.



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### Wasps



- Valuable insects
- Wasps die of starvation in late summer, Attack weak colonies for stores and larvae
  - Reduced entrances
- Bee tight hives
- Wasp traps in apiary

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### Asian Hornet



- Widespread in Europe, but spreading north in England as far as Lancashire so far.
- If found, must be notified to Bee Inspector, then attempts to find and destroy nest.
- Male 30mm, female 25mm, worker 20mm +.
- Distinctive yellow legs and orange 4<sup>th</sup> abdominal segment.
- Can catch bees in flight (hawking)

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Photos: © Crown copyright

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### Mice

- Enter hive at first frost
- Make nest in hive
- Destroy comb
- Disturb bees
- Colony reduction or destruction

Courtesy of Beige Alert

- Mouse guard before 1<sup>st</sup> frost
- Narrow entrances (<8mm)

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### Mouse guard

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mc1 michael collins, 24/03/2021

**Woodpeckers**

- Green Woodpecker - *Picus viridis*
- Learn to penetrate hive
- Feed on larva & stores



- Cover hive sides with
  - plastic sheet
  - Chicken wire

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**Other pests**

- Badgers
- Cattle
- Deer
- Humans



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**Final Note**

- Apiary Hygiene
- Get to know your bees
- Control Varroa

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