

MBKA Beginners' course

Session 3 Notes

Apiary Hygiene

Why

- To avoid spreading disease between colonies / apiaries
- To keep the bees calm and minimise disturbance
- To prevent robbing

How

- Disinfect equip. (espec. hive tool) in washing soda between apiaries
- Disposable gloves
- Keep bee suit clean (especially after a few stings)
- Regular comb changing don't keep using dark combs more than about 3 years old – move to edge and replace with foundation
- Avoid dropping wax or honey or spilling syrup in apiary - use a wax bucket
- scrape brace comb & excess propolis from frame edges, queen excluder, etc.
- label supers and replace on same hive!
- be wary of introducing a swarm of unknown origin
- don't exchange combs between colonies unless confident of disease status
- scorch woodwork before reusing

Colony records

Essential in some form or other.

Show examples

Colony manipulation

When opening hives

- Weather – ideally: warm, dry, calm, no thunder.
- Time of day – ideally mid day or early afternoon. So you open the hive when bees are busy and happy and when fewer are at home to defend the nest because more of them are out foraging.
- Duration – know what you are looking for before you open and minimise the time the hive is open, especially if weather is cool or windy.
- Smoke – in moderation. In advance at the entrance or through the mesh floor and wait a minute to calm colony (explain forest fire theory). Also to clear top bars and box edges before reassembling the hive to reduce squashing of bees.
- Stand beside or behind the hive (not in front) so the bees can continue to exit and enter hive by normal route.
- Calm, gentle movements. Avoid waving hands over the top of the open hive. Bees are attracted towards rapid movements
- Frame handling - Always vertical and over hive - demonstrate and try it yourself
- Shaking frames – to clear bees from the brood for closer examination

Dealing with defensive bees

Gentle handling. Fine weather. Mid day (more out foraging). Manipulation cloths. Move hive 10m away (so flying and "disturbed" bees return to original site and are less likely to bother you). Neighbours or public not around. Two people working together.

Marking queens – colour codes: Will You Rear Good Bees?

1 or 6	White
2 or 7	Yellow
3 or 8	Red
4 or 9	Green
5 or 0	Blue

or just use Tippex! Demonstrate marking cage. Practice on drones.

You will also hear about **clipping queens**. The idea is to cut off half of one of the queens wings so that when she attempts to fly off with a swarm she falls to the ground and is lost. Therefore the swarm returns to the hive and you've not lost the bees. It allows for a slightly longer period between inspections in swarming period but you still have to take action when they raise QCs or risk losing casts.

The Sting

And now for the bad news – bees can sting!

Only to defend nest. Not while foraging unless severely threatened (stuck in hair, being swiped at, etc.). Drones have no sting. Workers less than about 2 weeks old don't yet have a fully developed sting gland. Queens only ever sting other queens.

The sting is barbed, so when used on a thick-skinned mammal it gets stuck. As the bee struggles free the venom sack tears off the bee and remains attached to the sting where it continues to pump venom for around a minute (although most of the venom enters in the first 20 seconds). Therefore, if stung you should scrape the sting off as quickly as possible with hive tool, finger nail, credit card, etc rather than pinching it out as you would a splinter (this only squeezes more venom in).

The sting includes an "attack" pheromone so when one bee stings, others are excited and attracted to the same site. So move away from the hive if you are unprotected and keep your beesuit and gloves clean if you are protected. Puff some smoke on the sting area to mask the pheromone. This pheromone is also released if bees are squashed during hive inspections.

A normal reaction is pain for a few minutes, redness and local swelling for 24-48 hours turning to itchiness as the swelling reduces.

A few people have a severe reaction to bee venom which may result in a potentially life-threatening anaphylactic reaction, characterised by blotchy rash, severe itching, nausea, difficulty breathing and faintness. Symptoms are generally more serious if the sting is around the nose, mouth or neck and swelling can threaten the airway.

It is normal for beekeepers to receive "mild" stings through clothing or gloves, when the sting doesn't fully penetrate the skin and little venom is administered. Through this exposure many beekeepers become desensitised but everyone's "allergy status" is fluid and it is perfectly possible to become sensitised and develop a more severe reaction at any time.

Antihistamine creams and sprays are available. People who know they have a severe reaction are likely to carry an Epi-pen for emergency injection of adrenalin.

Coffee

Health and Disease

What factors contribute towards bee health?

Nutrition (varied diet, espec. Pollen); Fresh comb (old combs harbours pathogens); Good nest environment (to enable bees to regulate temperature and humidity); Lack of stress (weather, beekeeper, pests, pathogens, lack of food); Hygienic behaviour (removing dead & sick bees from the nest – the subject of some study re: varroa tolerance).

Most important to know what healthy brood looks like:

Open brood (larva) – pearly white, C-shaped, clear segmentation.

Sealed brood – regular light/dark brown, dry cappings, domed/convex.

Overall – brood pattern: Concentric rings with few gaps. “Spotty” or “pepperpot” brood is an indication of some sort of problem.

Pests

Waxmoth; livestock; badgers; wasps; woodpeckers; mice.

Exotic pests

Asian hornet; Small hive beetle; Tropilaelaps mite.

Brood diseases

American Foulbrood – cause, symptoms, treatment: always destruction.

European Foulbrood – cause, symptoms, treatment: destruction, shook swarm or (rarely now) OTC antibiotic.

Chalkbrood – common fungal infection

Sac brood – less common viral

Bald brood – not a disease but genetic or waxmoth damage

Drone brood in worker cells – drone laying queen or laying workers

Chilled brood

Adult bee diseases (briefly)

Acarine mite

Nosema

Chronic Bee Paralysis Virus

Deformed Wing Virus

Varroa

History, lifecycle, preference for drone brood, indicators of heavy varroa load.

Varroa treatments:

Pyrethroids; Thymol-based products (Apiguard & others); oxalic acid (Api-bioxal); Formic Acid (MAQS); Hopguard coming?

Biotechnical controls: mesh floor, drone brood trapping, icing sugar, some swarm controls techniques also useful for varroa control.

Monitor levels – drone brood uncapping or natural mite drop through mesh floor.

Apiary hygiene

Preventing spread of brood disease.

Specific inspections for disease

Legislation: Notifiable diseases and pests. Medication records

Beebase – reasons and benefits

NBU inspection service

Disease recognition workshops: Aberystwyth, Sat 3rd June; Flintshire Sat 17th June.

Lunch

Apiary session

Opening the colony

Handling frames

Using the smoker

Identifying castes of adult bees, brood, eggs, pollen and stores

Noting the pattern of the nest

Recording notes