Hygiene and Barrier Management

Jason Learner, Technical Adviser, National Bee Unit

We have all seen those science fiction films in which the creator (usually a mad scientist) conjures up some magnificent creature or invention which ends up being too overwhelming for him or her to control and results in his or her downfall. The plots of these films follow a simple formula. Time and time again, creatures like Godzilla are created because scientists forget that which should be ingrained into their practices – especially when dealing with radioactive machinery or harmful bacteria! They let one minor detail of biosecurity slip, for example blowing up an atom bomb on an island full of Komodo dragons. Suddenly, a world-threatening, skyscraper-scaling lizard is born … What were they thinking?

Barrier Management

It is not uncommon for bee farmers to forget about simple routines of basic barrier management. All is fine until something goes wrong and disease has spread because, for example, supers have been swapped and changed between colonies and/or apiaries.

There are many definitions of barrier management, but, in terms of beekeeping, it refers to a set of procedures designed to protect an apiary from the entry and spread of pests and diseases. While barrier management methods will not prevent the mutation of a giant apocalyptic bee intent on destroying civilisation, they can prevent or minimise the spread of harmful pests and pathogens between honey bee colonies which, let's face it, is probably the next best thing.

Disease management is made up of two key components: prevention and cure; the former (biosecurity) is always better than the latter.

At the risk of 'teaching ol' grandma how to suck eggs', following are some simple suggestions to implement biosecurity and barrier management in a bee farming operation.

Clothing and Equipment

Cleaning hive tools between colonies and smokers between apiary sites is a good start. Use a strong washing soda solution (1 kg of soda to 5 l of water).

Wear clean overalls and hot-wash them regularly so that they are not coated in honey, which could be a carrier of disease organisms. Sometimes, this does not seem practical, especially when you get in late at night and you need to go out early the next morning. However, it is far easier than having to find time to clean and sterilise contaminated equipment.

Spare overalls should be carried, in case disease is found.

Use disposable gloves for inspections and change them between colonies, or, at the very least, between apiaries. Alternatively, use easy-to-clean washing up gloves, which can be worn over leather gloves if desired.

To minimise drifting, hive entrances are arranged to face in different directions

Frames can be boiled in a strong soda solution, prior to reuse

Vehicles

Make sure your vehicle is clean and tidy and, if necessary, buy a sheet of lino to put on the van floor so it can be easily cleaned. This will help to reduce the risk of cross-contamination between infected equipment brought in for cleaning and clean equipment transported back to sites.

Hives

Prevent drifting of bees by arranging hives with their entrances facing in different directions.

Make sure hive components, ie, brood boxes, supers, roofs, etc, are in good condition and have no holes through which robber bees can gain access.

Change a minimum of three frames of old comb in each colony per year for three clean frames of foundation. This helps reduce the reservoir of disease organisms that may be present in a hive.

When Disease Occurs

If few disease prevention measures are practised, while the amount of disease prevalent in the surrounding area is high, then this increases the chances of contraction and spread. Once there, it is difficult to get rid of disease without a strict routine of effective biosecurity measures. Some practical strategies to eliminate infection are listed below.

- Regular brood inspections. Looking at the brood increases the chances of finding disease, while not looking at it means disease will not be found.
- Changing brood comb each year can be effective to help eliminate disease. This may mean shook swarming individual colonies or whole apiaries.
- Frames can be boiled in a strong soda solution prior to reuse, or replaced with new frames, using new foundation in both instances.
- Melt out super comb and sterilise supers.
- Clean hive equipment regularly, by scorching or using a solution of bleach at one part household bleach to five parts water.
- Number your hives and all supers which go onto each hive with the same number and return them following extraction to the same location. Permanently numbered boxes can be troublesome when frequent changeover of boxes occurs. It is better to use removable numbers which can be transferred from box to box. Pipe tags are good for interchangeable numbering on hives.
- Close up and collect dead colonies from sites promptly to prevent robbing, whatever the time of year.
- Quarantine and move (under licence) infected colonies to an isolation/ hospital apiary.
- Knowledge of and liaison with nearby beekeepers to monitor occurrences.
- Surveillance for wild/feral colonies which may become a disease reservoir within an area.

Pipe tags are a durable solution to hive numbering

This may all sound time consuming, costly and labour intensive, which is good reason to maintain effective barrier management practices in the first place. So, if you have not done so already, why not integrate even just some of the simpler barrier management suggestions into your operation? The great thing about these is they are not rocket science and are easy to get to grips with. Even better, they could save you a whole load of time and cash.

If you don't have strategies in place and you live in an area where foul brood is lurking, you should (this is a final David Cronenburg coin, I promise) be afraid … be very afraid … □