



National Bee Unit

The Control of European Foulbrood

European foulbrood (EFB) is a statutory disease that legally requires beekeepers to inform the National Bee Unit if they suspect their colonies to be infected. An authorised Bee Inspector will examine the colonies and assist the beekeeper in disease control measures. However beekeepers should develop the skills to detect and prevent this disease using their own measures.

It is currently considered that replacing old brood comb in colonies will help reduce the proportion of disease pathogens and may help control European foulbrood (EFB). Transference of combs between colonies is known to be a major risk when spreading disease, especially when beekeepers are unaware of an infection. An authorised Bee Inspector can treat infected colonies by:

- Administering an antibiotic; Oxytetracycline (OTC);
- Carrying out a Shook Swarm (SSW) or;
- The destruction of the colony.

In colonies lightly infected (less than 50% visible infection), the Bee Inspector may choose to treat by either administering an antibiotic or using the Shook Swarm procedure. Antibiotics may be used early or later on in the season where Shook Swarms would be considered impractical and detrimental to colony health. Shook Swarm is the preferred method because it removes a lot of the infected material from the colony and is effective at combating EFB and reducing subsequent recurrence of disease. It also negates the risk of residues being left behind in honey crops posed by antibiotic use. Weak and high proportions of diseased brood (those that exhibit symptoms of EFB across 50% or more of the frames) are destroyed. Improved husbandry skills such as recognising the signs of foulbrood or quarantine systems to avoid the spread of disease and disinfection of equipment could result in a decline of the number of cases of EFB. A reduction of EFB cases by 1 in 10 per year would cause a significant decrease in total cases but a 1 in 10 increase per year would be devastating. The graph below indicates the changes expected at these rates. The horizontal line ($r=1$) represents no change from 1,000 cases, the upward curve

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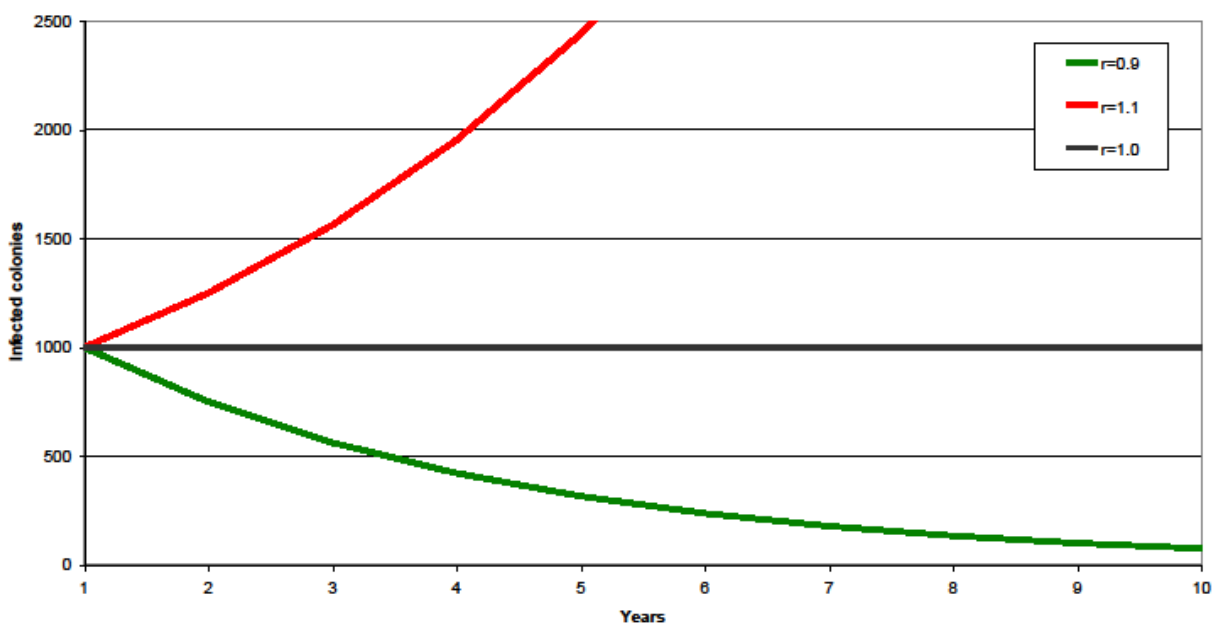


($r=1.1$) shows the predicted consequence of a 1 in 10 increase in infection rate and the declining curve ($r=0.9$) the predicted outcome of a 1 in 10 decrease.

EFB Control Measures

Various control plans are listed in stages that are related to EFB risk. In areas where EFB is not found beekeepers should maintain Stage 3 at the very least, and maintain Stage 6 where there are repeated disease outbreaks.

Influence of of new infection rate on changes in disease levels



Stage 1

Carry on without change.

Stage 2

- Check colonies for disease signs once a year;
- Change two brood combs in each colony and;
- Basic apiary hygiene.

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Stage 3

- Check colonies for disease signs twice a year;
- Change three or four broods comb in each colony;
- Basic apiary hygiene and;
- Quarantine supers, brood and excluders at apiary level.

Stage 4

- Check colonies for disease signs three times a year;
- Change all brood combs every two years;
- Strict apiary hygiene;
- Quarantine supers and excluders at colony level and;
- Shook Swarm EFB infected colonies.

Stage 5

- Check colonies for disease signs four times a year;
- Change all brood combs every year;
- Very strict apiary hygiene;
- Quarantine supers, brood and excluders at colony level;
- 'Shook Swarm'* EFB infected colonies;
- Destroy heavily infected EFB colonies and;
- Maintain a hospital apiary.

Stage 6

- Check colonies for disease signs at every apiary visit;
- Very strict apiary hygiene;
- Quarantine supers, brood and excluders at colony level;
- Quarantine other equipment at apiary level;
- 'Shook Swarm'* all colonies each year and;
- Destroy all colonies showing signs of EFB.

Some of these measures may seem a little extreme but they can be selected to suit the needs of the individual and the local situation. If beekeepers do nothing and EFB escalates it could cause a huge impact with lost honey production, pollination and beekeeper numbers. If husbandry and recognition skills are improved EFB should become a less common disease problem, honey production and pollination increasing significantly. Further information on these procedures can be found in various leaflets, textbooks and these fact sheets:

'Fact Sheet Replacing old Comb', 'Fact Sheet Apiary Hygiene and Quarantine', 'Fact Sheet Shook Swarm' and the statutory advisory leaflet 'Foulbrood Disease of Honey Bees and Other Common Brood Disorders'.

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