

(From the warrebeekeeping forum)

### **Controlling AFB without Drugs**

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At The National Honey Show in London on Sat 29 Oct, I attended a talk entitled 'Controlling AFB without Drugs', by Dr Mark Goodwin (MG) of the NZ Institute for Plant and Food Research.

As I was drafting this post I was aware that a similar post had been made by Dan Basterfield on the Irish Beekeeping Forum. Rather than repeat content I have added that post below my message. It contains details of tests and studies related to points below.

MG covered the biology of paenibacillus larvae and later how to recognise the disease. He said that AFB was very resistant and could sit in a site for years; besides fire, paenibacillus spores could be killed by dipping in paraffin wax at 160deg c for 10 minutes or 1% sodium hypochlorite for 1 hour.

He said that although it only needs a few spores to infect a new larva before it develops immunity, it was hard for bees to infect a colony, needing 5 million spores.

However, beekeepers were managing to infect colonies. High risk activities were listed as:

1. Exchanging brood frames.
2. Allowing robbing, or keeping weak colonies which could be robbed.
3. Feeding pollen from traps into which spores could have dropped
4. Feeding unknown honey - Argentina cited as very risky source
5. Swapping wet supers between hives
6. Using dirty floorboards .

MG stated that "AFB is a beekeeper disease" . There was a noticeable hush in the audience but later much applause for his candid delivery.

A NZ government programme was set up to eradicate AFB, but when infection rates kept rising they stopped the funding in 1990 and told the beeks to sort themselves out. At the peak they were burning over 3000 hives each year.

Infection rates were indicated as 1965, 0.2%: 1990, 1.2% falling to 0.3% in 2000 after 10 years of the beekeeper programme designed and funded by beeks ( it took 10 years to sort out the details!).

Contaminated honey was discussed; in 1990? in NZ 32% of all commercial honey was contaminated. By 2008, 0% spores were found in samples. Honey imports were cited as a major risk to future bee health. MG said if we stopped importing foreign honey, AFB might be eradicated but ..free trade politics etc... In discussion an ex FERA inspector remarked that a number of AFB cases in UK had been found around a major bottling plant where honey drums had been left open to bees.

Open discussion also raised the risk to bee health by the public putting out saucers of cheap honey or sugar syrup to 'help the bees'; the latter can 'spark' robbing.

I asked MG about the incidence of AFB infections in feral honey bee colonies in New Zealand. He considered ferals to be low risk to beekeepers but other factors like colony density were involved.

I felt the main message was about EDUCATION of beeks and that if we had to change behaviour we could.

I have taken away the need to address the high risk activities listed above.

As a Warré beekeeper I see robbing as my biggest risk; it is important to monitor colonies, identify weakness and if necessary cull, re-queen or combine colonies before they succumb to robbing. Indications of low foraging activity, poor expansion and no increase in weight during honey flows would merit intrusive inspection. After all such a colony is unlikely to survive winter, let alone produce a honey crop.

John, Hampshire UK

On 30 October 2010 14:02, Daniel Basterfield <daniel@...> wrote:

> I had the opportunity to speak with Dr. Mark Goodwin at length after his lecture at the National Honey Show yesterday. Amongst other topics, principally the operation of the pollination industry in NZ, I asked him specifically about the recently discussed study on AFB in ferals vs. manageds and my strong concerns over the disparity of the samples and the validity of the comparison made.

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> He recalled the study clearly, as you might expect, yet didn't want to be drawn on the validity of comparing random ferals with only diseased manageds. However he was very happy to talk about the context of the study, and to highlight that the understanding of entrance sampling and its effectiveness has moved on significantly since then.

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> The study coincided with a period of upheaval in NZ beekeeping. Within the space of the two years the NZ government had first announced that funding for their disease inspection & control service would be cancelled forthwith, then that the statutory controls of AFB were to be removed. Effectively, as Dr. Goodwin put it, the beekeepers were told that they were on their own to sort it out. Bear in mind they do not experience EFB in NZ.

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> The beekeepers' response was to raise money and put in place their own scheme. But more than this, Dr. Goodwin said the experience was

> cathartic; whereas previously one beekeeper might whisper guiltily that he'd had problems, suddenly beekeepers were standing up at meetings and declaring their full AFB experiences

"like they were at an AA meeting".

> So clearly the true scale of the problem became apparent to all.

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> A strong feeling persisted that they only had AFB problems because of infection from other diseased colonies nearby, not their own colonies and/or practices, which obviously led to a blaming of feral colonies when distant to other beekeepers. Through a number of studies and demonstrations, Dr Goodwin's team were working to change this perception and behaviour because they believed - and subsequently proved - that the

> beekeeper was far and away the most significant vector despite him

> failing to acknowledge this.

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> One demonstration was to locate many colonies in pairs, with the only rule that material was not moved between the pairs. Each pair consisted of a colony with AFB, and a colony without; dead colonies were closed/removed immediately. Out of 500 colonies for one season, no transmission from infected to clean partners was found.

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> Another exercise was the work with one commercial beekeeper who had

> persistent 50% AFB infection in his 800 (IIRC) hives. Looking at his

> methods, he routinely swapped equipment between hives regardless of

> disease status. Dr. Goodwin's team simply asked that he number his hives and never move combs and equipment around; all supers were to be

> replaced to the hive they came from after extraction, for instance. Over five seasons, with timely destruction of infected colonies, incidence was reduced annually from 50%, to 10%, to 2%, and then to negligible levels.

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> In another study, they showed that the numbers of spores required to

> transfer infection from one colony to another was such that even the

> routine use of leather gloves by beekeepers and bee inspectors was not a vector. (Remember that they had no interest in EFB as they do not have it in NZ.) The number of spores required to achieve infection could only come from moving combs between colonies, intentionally or inadvertently (e.g. brood given to a queenless colony, or wrongly returning supers).

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> They also demonstrated that by located clean and infected colonies in pairs, then moving the infected colonies away, the returning foragers from the infected colonies were not sufficient even in great numbers to infect the clean colonies.

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> They demonstrated to the beekeepers that AFB could be transmitted

> through robbing.

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> As you might imagine, they were successful in convincing beekeepers that AFB was principally transmitted by their practices. This paper on ferals vs. manageds was one such part of this move for acceptance and culture change.

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> Now that I understand the context, I understand why the background in the paper seemed so one-sided, and why the experiment was conducted as it was. Although Dr. Goodwin did not say as much, I have the strong feeling from our conversation that they found the result they needed to stop beekeepers whining about infection from feral colonies and instead to concentrate on the far more significant failings of their own practices.

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> I still wouldn't view it as an impartial confirmation that feral

> colonies are inherently healthier or cleaner than managed colonies, and  
> found the discussion of the context of the study far more insightful  
> than the study itself, or indeed of a rather dry picking over of  
> references to references to references - and I mean this in a positive and constructive way!  
Perhaps other will still choose to view it at face value. I simply offer the perspective gained  
from the horse's mouth, as it were, because I found it enlightening.

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