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American foulbrood in NSW

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What is it?

American foulbrood (AFB) disease is the most serious brood disease of bees in NSW. It is caused by the bacterium *Paenibacillus larvae*. In Australia, it has been found in all states. It is a disease of economic importance to the individual beekeeper and to the bee industry, as infection may lead to serious economic loss through the destruction of colonies and loss of production.

It is a notifiable disease under the *NSW Apiaries Act 1985*. There is a persistent low level of infection in NSW. Early and accurate diagnosis is essential if control is to be effective.

Spores remain viable in honey for decades, and adult bees can carry spores without themselves becoming diseased. The disease can be rapidly spread by beekeepers, through the interchange of infected combs and hive components between hives and apiaries. Beekeepers can also spread the disease by feeding infected honey or pollen. The disease is also spread by bees stealing honey from infected hives, beekeepers' storage areas, extraction sites and rubbish tips, and by bees drifting from infected colonies into neighbouring colonies. Specific sources of infection can include another nearby apiary, equipment moved to the apiary, or a caught swarm.

Beekeepers must carefully examine honey bee colonies for disease several times each year. The brood should be thoroughly examined for AFB at least twice a year, in spring and autumn. It is also good practice at any time of year to examine colonies that undergo a population decline, to determine if disease is the cause.

How do you identify it?

Refer to Primefact 209 *American foulbrood* for further information on:

- inspection techniques
- signs of the disease
- disease spread
- diagnosis
- treatment
- compensation
- avoiding major disease outbreaks.

Why is it an issue?

- AFB actively kills bee larvae – more than 95% of infected hives weaken and die out if left alone.
- Spores survive for more than 40 years (and up to 70 years), and are a potential source of infection to bee colonies during this time.
- In areas with infected hives (feral or managed), there is a high risk of bee colonies within a 3 km radius stealing from infected hives/materials and taking the disease to their own hive.
- AFB does not go away by itself like most other bee diseases, and requires human intervention to eradicate it from hives or from a district.
- The use of antibiotics will cause residue contamination and the development of resistance.
- AFB will, by degrees, erode the viability of a national industry that involves 1000 commercial beekeepers, who produce $65 million annually in bee products.
- It will reduce the effectiveness of the honey bee industry as a pollinator of crops and pastures. Economic studies have valued the honey bee industry's pollination role at $1.7 billion per annum.

What does NSW DPI want to achieve?

NSW DPI wants to support industry measures to reduce the incidence of the disease. Our priorities are focused on activities that are likely to produce the greatest benefit for the bee industry; that is, to reduce the level of AFB in NSW apiaries to the lowest level achievable with available resources.

What can't NSW DPI achieve?

NSW DPI cannot manage AFB on behalf of the industry, or achieve eradication of the disease from the industry overall.

What can the NSW bee industry do?

The control of AFB is primarily an industry responsibility; disease signs can be recognised by experienced beekeepers and the control and eradication of the disease is established through management procedures.

Responsibilities specific to beekeepers include:

- regular inspection of their hives for AFB
- notifying any new detections of AFB to an inspector within 24 hours
- taking precautions to prevent the spread of AFB between hives and to other apiaries by adopting a barrier system
- controlling and eradicating AFB in their hives
- seeking and following the advice of livestock officers – bees
- providing labour to break down and reassemble hives during inspections
- complying with all written directions issued by an inspector
- complying with all legal obligations
- not feeding antibiotics to AFB-infected colonies.

What will NSW DPI do?

NSW DPI employs extension, research, diagnostic and regulatory staff to assist the apiary industry with the control of AFB. Each of these branches has distinct responsibilities. The staff and functions are managed as follows.

Extension is in the Division of Agriculture, Fisheries and Regional Relations, and is represented by the technical specialist – bees, and livestock officers – bees, who are located in Goulburn, Bathurst and Tamworth.

These extension staff are responsible for advising, training and accrediting beekeepers to prevent, recognise, control and eradicate AFB in their own apiaries, and to assist beekeepers in developing and implementing quality management programs. They organise meetings, field days and training sessions, prepare resource materials and cooperate closely with other NSW DPI functions involved in AFB control.

There is a significant difference between the extension and regulatory functions within NSW DPI. Department policy prevents any extension officer from exercising the powers of inspectors under any Act.

Research is in the Division of Science and Research, and is represented by research scientists and technical staff at various agricultural institutes in NSW, such as Elizabeth Macarthur Agricultural Institute and the Orange Agricultural Institute.

Diagnostic & Analytical Services is in the Division of Science and Research. Its role is to provide quality assured laboratory testing services in veterinary pathology, analytical chemistry and plant health.

Regulation is in the Division of Biosecurity, Compliance and Mine Safety. Regulatory officers (apiary inspectors) are located across NSW and are responsible for compliance activities, such as inspections in response to disease notifications, and ensuring accordance with legislation, policies, procedures and work instructions.

In the event of a disease outbreak, beekeepers known to be at high risk are notified. Intelligence on the possible sources of the disease will be collected and collated for possible action to identify the source and to limit the potential for spread.

Regulatory officers carry out their responsibilities under the *Apiaries Act 1985* and the Apiaries Regulation 2005. They will investigate breaches of this legislation, and may take enforcement action against offenders, including issuing infringement notices or court action. In relation to AFB, typical offences would be failure to notify of the disease, keeping infected bees, and failure to comply with written directions.

Regulatory officers work closely with both extension and diagnostic & analytical services. When beekeepers seek advice on disease management and/or training, the regulatory officer refers the case to a livestock officer – bees. They also refer the disease status of individual beekeeping operations, for the purpose of providing advice to the inspector and/or beekeeper, if requested by either.

For further details, contact your nearest NSW Department of Primary Industries office.

Further information

Agnote DAI 209 *Samples for bee disease diagnosis*

Primefact 39 *American foulbrood disease – inspection management*

Primefact 194 *American foulbrood disease – sending beehive material for irradiation*

Primefact 193 *Beekeepers and registration – NSW Apiaries Act 1985*

Primefact 245 *NSW Apiaries Act 1985 – a guide to the main sections*

Video: *Endemic bee disease*

Acknowledgements

This Primefact borrows from the draft NSW Policies and Procedures document – American Foulbrood and Primefact 209 *American Foulbrood* by Dr Douglas Somerville, Livestock Officer (Apiculture), Intensive Industries Development, Goulburn.

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