Fact sheet

Plant Health AUSTRALIA

ESTABLISHED PEST

Black queen cell virus

What is Black queen cell virus?

Black queen cell virus (BQCV) is caused by the *Black queen cell virus* (*Cripavirus*). BQCV causes mortality in queen bee pupae, with dead queen bee larvae turning yellow and then brown black. The disease is most common in spring and early summer. It is believed that infection with BQCV may be transmitted by *Nosema apis*, a microsporidian parasite of the honey bee that invades the gut of adult honey bees.

What should beekeepers look for?

Infection with BQCV causes queen bee pupae to turn yellow and the skin of the pupae to become sac-like. At latter stages of infection, the dead queen bee may change to brown-black. The walls of the queen bee cell also become a darker, brown-black colour. BQCV is often associated with *Nosema apis* infection. If Nosema disease is present within a queen bee breeding operation, it is always useful to look for signs of BQCV on a regular basis.

What can it be confused with?

BQCV can potentially be confused with Sacbrood virus as the pupae show the same symptoms of yellow colouration, the skin becoming plastic-like and the dead pupa becoming a fluid filled sac. However, as its name suggests, BQCV usually affects queen bee pupae, while Sacbrood virus mainly affects developing worker bee larvae.

How does it spread?

BQCV is thought to be transmitted by nurse bees when they feed larvae infected brood food. The virus may remain viable in larval remains, honey or pollen for up to four weeks. *Nosema apis* infection in a colony may be another transmission route of BQCV. Honey bees drifting between hives, contaminated water and equipment can also spread BQCV.

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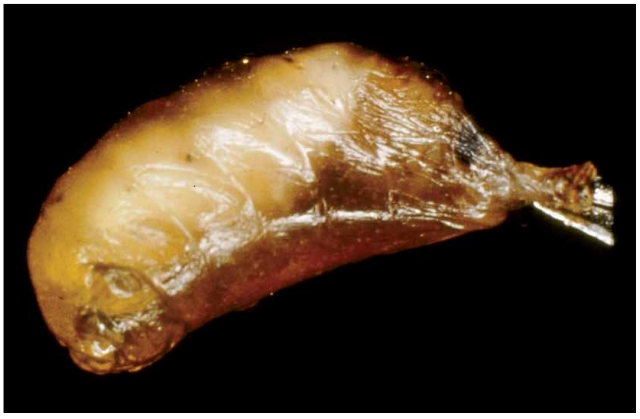
Worker bees on a queen bee cell



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Sacbrood disease affected larvae; BQCV causes the queen bee pupae to display similar symptoms

Sam Malfroy

When breeding queen bees, look for signs of BQCV in queen bee cell starters

Where is it now?

BQCV is present throughout Australia; however, it has not been reported or confirmed in the NT.

How can beekeepers protect their hives from Black queen cell virus?

BQCV is usually able to be controlled in most colonies with appropriate nutrition, young queen bees with populous hives, comb rotation every 3-4 years and the placement of hives in a warm and sunny position over the autumn, winter and spring periods. This will help keep colonies strong, remove extra stresses and also reduce the potential of Nosema disease infection.

Beekeepers should maintain good apiary hygiene and be aware of the symptoms of BQCV or Nosema infection within any queen bee breeding operation. If a beekeeper is a queen bee breeder and believes cell starters or nucleus hives are infected with BQCV, they should not be used for raising queen bees, or sold or distributed. This will help stop the spread of infected queen bees to other hives and regions.

If BQCV is detected in a queen bee breeding operation, it is recommended that the beekeeper contact their local department of agriculture and request to send in a sample for laboratory diagnosis.

BQCV is present in every state and territory of Australia, except for NT where it not has been reported or confirmed.

Other relevant fact sheets about BQCV:

- Viruses of honey bees (NSW DPI) – Primefact 997

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Queen bee cages