

Management practices to minimise cucumber green mottle mosaic virus in European honey bee hives

Cucumber green mottle mosaic virus and bee hives

Cucumber green mottle mosaic virus (CGMMV) is a plant disease that is found in cucurbits (e.g. watermelon, cucumber and pumpkin) and a number of common weed species.

Honey bees come into contact with CGMMV when collecting pollen and nectar through their regular foraging activities. Although live CGMMV has been identified in bee hives we have no evidence that CGMMV affects the health of bee hives. There is some evidence that bees are able to move CGMMV infective material from CGMMV positive plants to healthy plants and thus transmit the virus.



Good apiary management

Apiary management requires vigilance of the health of hives. Good biosecurity practices to ensure hive health include; regularly checking brood production and appearance, honey production and worker bee behaviour and appearance. Other practices that maintain hive hygiene include:

- quarantining and isolating new entrants to the apiary. For bee diseases this is typically 4-6 weeks
- clean all equipment between hives or loads of hives. If possible, have separate equipment between loads
- store equipment and consumables on the apiary in such a fashion that bees cannot access it
- hive components should only be interchangeable within a load
- honey supers should be separated at the extraction plant and not interchangeable between loads
- the extraction plant and hive equipment should be cleaned between loads to ensure all wax and honey debris is removed. Typically this is done using hot water or steam cleaning.

Principles of CGMMV management

Successful apiary management practices minimise the introduction and possible spread of CGMMV within a beekeeping enterprise. Management practices aim to prevent or control the introduction of CGMMV into hives and increase the likelihood of being able to trace detections back to the source. A variety of management practises are used, and may involve separation of single hives, separation of loads of hives or even the separation of entire apiaries into distinct units. The principles of apiary management are the same, no matter what type of management system you adopt. Principles of apiary management are:

- physical separation to prevent and minimise possible CGMMV spread, changing frames and spinning off honey immediately after a known exposure to CGMMV positive plants
- use of biosecurity practices to minimise the introduction of CGMMV e.g. not working crops
- known to be CGMMV positive and resting hives at 3-5km away from known CGMMV positive sites

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- keeping concise and accurate records, to enable trace back to determine the source of a disease.

Specific management practices are context specific and can be developed to suit commercial or individual needs.



Management practices

Management practices for CGMMV require the continuous implementation of biosecurity measures.

Ensure:

- clear permanent marking and identification of hives (individually or in loads) and their components
- accurate and concise keeping of records for all apiary activities
- you have a clear understanding on the how management systems operate
- you understand how bees and hives are exposed to CGMMV
- a 3-5 km separation of possible CGMMV infected hives and CGMMV free hives
- hives that contain CGMMV are attended to last in the workflow, and that you use separate hive tools and bee keeping gear for these hives
- restrict movement of people, vehicles and animals to hives that you suspect contain CGMMV
- you do not neglect hives, or equipment associated with hives suspected to contain CGMMV. They may act as a reservoir
- the apiary and pollination sites are kept free from weeds that may act as reservoir hosts for CGMMV.

Visit our website for more information

- [Northern Territory Government website](#)¹
- [Department of Primary Industry and Resources website](#)²

If you have any questions, please contact the Exotic Plant Pest Hotline on 1800 084 881.

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¹ <https://nt.gov.au/industry/agriculture/food-crops-plants-and-quarantine/cucumber-green-mottlemosaic-virus>

² <https://dpir.nt.gov.au/primary-industry/primary-industry-strategies-projects-and-research/plantindustries-research>