



BEEKEEPING BASICS - PESTS AND DISEASES

Chronic Bee Paralysis Virus (CBPV)

Chronic bee paralysis virus (CBPV) is a virus that mostly affects adult honeybees, though it can also infect developing larvae. The virus causes 2 distinct types of infection with varying symptoms. At severe rates of infection, the virus can cause high levels of mortality and contribute to colony losses. Bees may die within 5 days of becoming infected.



Distribution

The virus has a global distribution, which up until recently caused rare but severe paralysis disease in honeybees. The incidence of the disease has increased dramatically in recent years in Europe, Asia and North America and it is considered an emerging infectious disease.



Physical description of pest

Bees infected with CBPV show symptoms to the nervous system, including paralysis, shaking and an inability to fly. The virus particles are concentrated in the head and severely damage the brain.



How it affects the hive

CBPV appears to survive in honeybee colonies at low levels without causing any notable harm. Outbreaks can then lead to the deaths of high numbers of bees, especially in strong colonies. Left untreated, an outbreak can lead to the death of the colony, particularly when in combination with other disease issues.



How it spreads

Chronic bee paralysis virus is spread through fecal to oral transmission within the hive and close contact between worker bees. For this reason, crowded colonies are the most susceptible to CBPV outbreaks, (particularly in spring and summer in temperate areas).



Symptoms and Detection

CBPV shows few symptoms of infection at low levels, so it is usually not detected before it reaches fatal levels. It can spread throughout a hive before its presence is detected. There are two types of infection with distinct symptoms:

- Type I infections cause bees to have bloated abdomens and weak or trembling wings. The bees lose their ability to fly and can be seen crawling and shaking on the ground or near the entry to the hive.

- Type II infections cause the bees to lose all their abdominal hairs and appear black or greasy. They retain the ability to fly for 2–3 days after infection and subsequently suffer paralysis and death.

Both types of infections can be present in the same colony simultaneously and result in large numbers of dead bees outside the hive.



Prevention

Good husbandry and hygiene can reduce the spread of CPBV. Beekeepers should try to reduce the movement of frames and supers between colonies and apiaries. Be careful if purchasing second-hand beekeeping equipment.

Hive boxes and material from an infected hive should be thoroughly cleaned before re-use. Combs from badly infected hives should be disposed of.



Treatment and Control

Treatment measures include supplemental feeding and providing the bees with more space by adding extra hive boxes. This can reduce crowding in the hive and therefore reduce the spread of the virus. Requeening is an option if other methods have not been effective. Quarantining an infected hive can reduce the spread of the virus within an apiary.

REFERENCES

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Bee with bald, black abdomen & deformed wings. PHOTO: The Animal and Plant Health Agency (APHA), Crown Copyright