ALBERTA BEEKEEPERS COMMISSION
TECHTRANSFER PROGRAM

SACBROOD VIRUS

Sacbrood Virus (SBV) was the first honey bee virus identified and can be found across the globe. SBV primarily affects the development of honey bee larvae, but can be found in adult bees, shortening their life span. While SBV is rarely the sole cause of die-off in a colony, it can exacerbate already existing issues and limit a colonies ability to maintain healthy population levels. This makes it an important disease to manage to limit stress and pressure within your hives.

WHAT IS SACBROOD?

Sacbrood is a disease caused by the *Morator aetatulas* virus. While it can be found in all life stages of honeybees, it mainly targets worker larvae. SBV infects and multiplies inside larvae, preventing them from pupating and killing them. SBV is most common in the spring when the colony is growing, but usually will be self managed by the hive during the honey flow.

SYMPTOMS

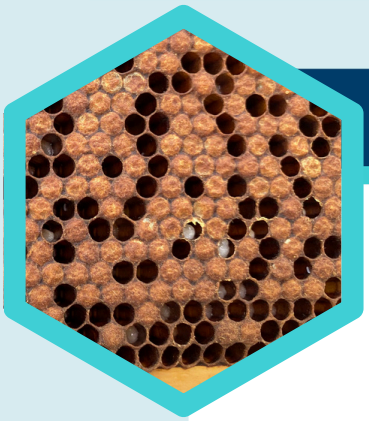
- Larvae encased in a fluid filled sac.
- Dead larvae that can be removed intact.
- Unlike foulbrood, is not gooey or ropy.
- Dead larvae positioned stretched out with their heads raised.
- Uncapped brood.
- If infection progresses later in the larvae development, brood will be capped, but will remain closed after surrounding brood has emerged since the larvae died.

CAUSES AND TRANSMISSION

Infections can flare up during times of stress caused by limited resources, poor weather, or high diseases load. It is transferred through shared resources and drifting bees. Transmission to larvae occurs when an infected nurse bee feeds a larvae, unintentionally delivering viral particles. Also, Varroa mites are believed to be a mechanical vector of SBV, facilitating hive to hive transmission.

IPM STRATEGY FOR PREVENTION

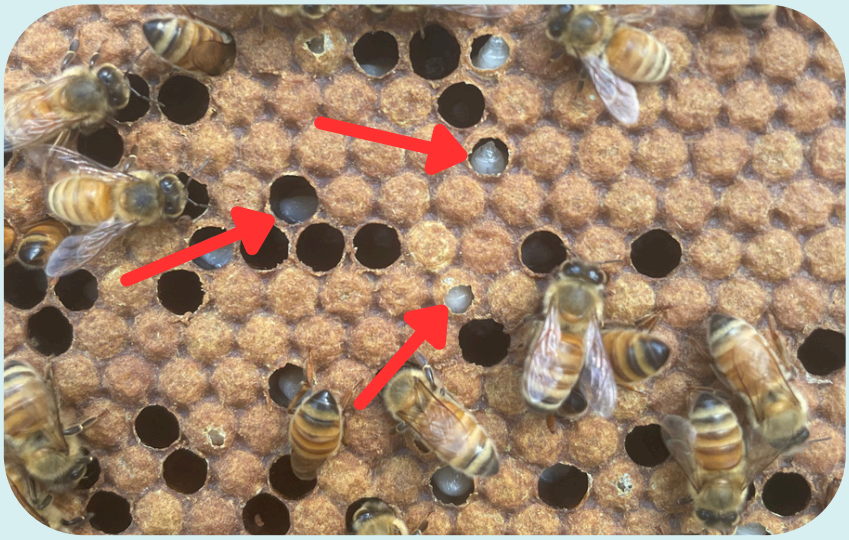
- Limit stress through good management practices, including:
  - Constant and effective control of Varroa mite levels.
  - Ensuring access to diverse forage year around.
  - Supplementing with sugar syrup and pollen patties.
  - Rotating out old equipment each year.
- Implement biosecutiry strategies such as torch hive tools after each yard or between colonies, use disposable gloves and wash bee suits with bleach.



I HAVE SBV, WHAT SHOULD I DO?

- Currently there are no chemical treatments available for viral infections including SBV.
- Ensure bees have access to abundant nutrition through diverse forage and, if needed, supplemental feeding.
- Minimize the exchange of bee materials between healthy and infected hives.
- Re-queen heavily infected colonies.
- Remove and destroy heavily infected frames from colonies.
- Isolate infected colonies in hospital yards to prevent the spread of SBV and monitor disease levels frequently.
- Practice good biosecurity when dealing with infected colonies.

SACBROOD VIRUS GALLERY



Larvae irregularly positioned with heads facing upwards and backs along the side of the cell.

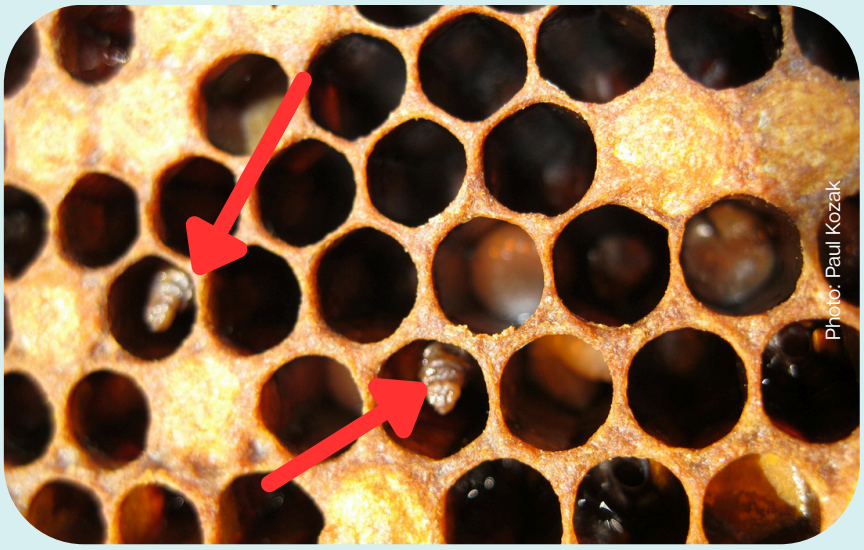


Photo: Paul Kozak

Larvae with darkened, dried out heads.

Photo: Shelly Hoover

Larvae removed from the cell appears as a fluid filled sac encased by leathery skin.

Pernal, S.F., & Clay, H. (2013). *Honey Bee Diseases and pests (3rd ed.)*. Canadian Association of Professional Apiculturists.

Borbra, R., & Olson, E. (2021). *Honey Bee Viruses*. Alberta Beekeepers Commission: TTP Blog

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