

How the Cause of Diarrhea and Constipation can be Identified in Honeybees

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Topics covered...

- How metabolic diseases can be prevented
- How a cause for metabolic disease can be identified
- A solution for metabolic diseases

Introduction

- Most honeybee metabolic diseases show symptoms of diarrhea in front of the hive or around 500 feet around the operation]
- Some defecation may show signs of constipation around the hives (entrance, max. 100 ft. away from yard)
- Many different reasons that cause similar symptoms to constipation and diarrhea
- Important to identify which issue or pathogen is causing the symptoms so that the risk of losing many hives can be avoided

Introduction

- Most metabolic diseases have symptoms of diarrhea
- These symptoms can be caused by...
 - *Nosema apis*
 - *Nosema ceranae*
 - *Amoeba*
 - Moisturized honey
 - An excess of antibiotics
 - Fermentation on the syrup or honey

Introduction

- Constipation is a metabolic disease caused by...
 - A cold climate
 - A long winter
 - Or a large pollen flow and not enough nectar
- Amoeba, diarrhea, or constipation can destroy a colony in a short time by preventing honeybees from consuming pollen
- No pollen consumption means that the bees cannot produce worker and royal jelly necessary for brood production → colony will disappear

Material

- Lab equipment appropriate for identifying and sampling amoeba and protozoa diseases
 - Sample slides
 - 40x – 100x objectives microscope
- Tweezers

Method

- Two different ways to identify diarrhea and constipation symptoms
 - Use of lab equipment
 - Field work, lab equipment not required

Method

How to identify defecation symptoms in the field

- Look around hive entrances, tops of lids, tarps (for wintering), 100 feet away from operation, or even on puddles...
- Dead bees with swollen abdomens and either dry pollen in their rectum and around the entrance
→ constipation present
- Runny, non-digested pollen around the entrance → diarrhea present

Method

How to identify defecation symptoms in the field

- Over 60% of defecation is **liquidity and have seedy spots in the middle** → some kind of **diarrhea** problem caused by either *Nosema apis*, *Nosema ceranae*, fermented honey, etc.
- Most defecation symptoms can be seen in early spring or in cold climates
- Normal to see 60% of defecation being long, dry and streaky. 70% indicates early stages of constipation

Method

- If after a few days or rain an operation is checked and there are no symptoms of diarrhea or constipation, it is recommended to feed 10% of the operation...
- Per 20 hives, 10 frames population each:
 - 1 kg honey
 - 4 kg sugar
 - 10 L warm water
 - 0.5 L lemon juice
- Mix the ingredients and portion less than a liter to each hive

Method

- Put three white sheets (1 m by 2 m) twenty feet, forty feet and sixty feet away from the operation
- Feed the bees next – being sure to do this method in above 14 degrees Celsius temperature.
 - Note: If there is no choice due to a cold winter, no lower than 8 degrees Celsius
- Wait three to six hours after feeding to count the amount of defecation the sheets