

Five diseases to know

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-> aim of this talk:

The warm up

Health care will be a normal part
of management

Five opponents to bee keeper

1. Varroa
2. AFB
3. Nosemas (*N.a.* and *N.c.*)
4. Chalk brood
5. Acarapis

Varroa

- Learn the reproduction cycle of Varroa
 - Life cycle -> Praktilline Mesindus p 149 ->
 - Reproduction speed fluctuates
 - Strong hive -> fast increasing !!!
 - Reproduction + re infestation from surroundings
 - Hygienic behavior reduces the reproduction speed

Varroa

- Control methods:
 - Organic acids
 - Formic acid, gel, evaporation plates, short term treatment
 - Oxalic acid, trickling (75 g oa+1 kg sugar + 1 l water), Fumigating

Essential oils

- Thymol, (12 – 24 g thymol / hive)

Management

- Removing drone brood or the whole brood area

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AFB

- One third of the hives in Finland have latent infection
- Only 3 - 10 % have clinical symptoms
- Infection transfers with 0,5 kg honey or
- 5 * 10 cm piece of comb with infected brood
- The spores can be virulent after tens of years in bee equipment
- Can be removed with good management
- Appears in some point in intensive management
- Supervised animal disease -> legislation,

AFB

Good management

- Learn to find the symptoms
 - Control during the normal management and action immediately when finding the symptoms
 - Follow the infection levels with lab tests from honey samples
- Think that it is always present, like Varroa
- AFB does not kill the hive but profitable bee keeping is with AFB is difficult

AFB

Good management

- Don't feed honey
- Build wax foundations regularly 10 / bee hive, melt the old combs
- Inspect three times / season
- Don't use foreign equipment with out disinfection
- Buy only lab inspected hives
- Use the same in boxes in in one bee yard

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Nosemas

- Two different species
 - *Nosema apis* is known and can be controlled
 - "forgotten" vinegar acid treatment, sp.
 - *Nosema ceranae* distribution and virulence is unclear???
 - Both species are overlapping and a lot of mixed infections
 - Both can be controlled same way :
 - Vinegar acid treatment and faeces

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Chalk brood

- Sensitive bees versus resistant bees
 - Sensitiveness seems to be in all subspecies
- Using for queen breeding the not sensitive strains. These can be found according to the management notes
- There is no special treatment other than changing the queen and removing the infected combs from the hive. (Shaking on the foundations don't seem to be very effective)

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Acarapis

- Pops up now and then here and there
- Formic acid treatment kills also Acarapis
 - ½ of the varroa treatment is effective
 - Does not extinct, but is always ready to distribute, when the circumstances are favourable

EFB

- Big losses in Norway during 2011 and 2012
- Earlier has bee combined to cold weather and poor nutrition
- Might be some new strains of *Melisococcus* bacteria, which are more virulent
- "New symptoms" kills the colonies in the end of the season