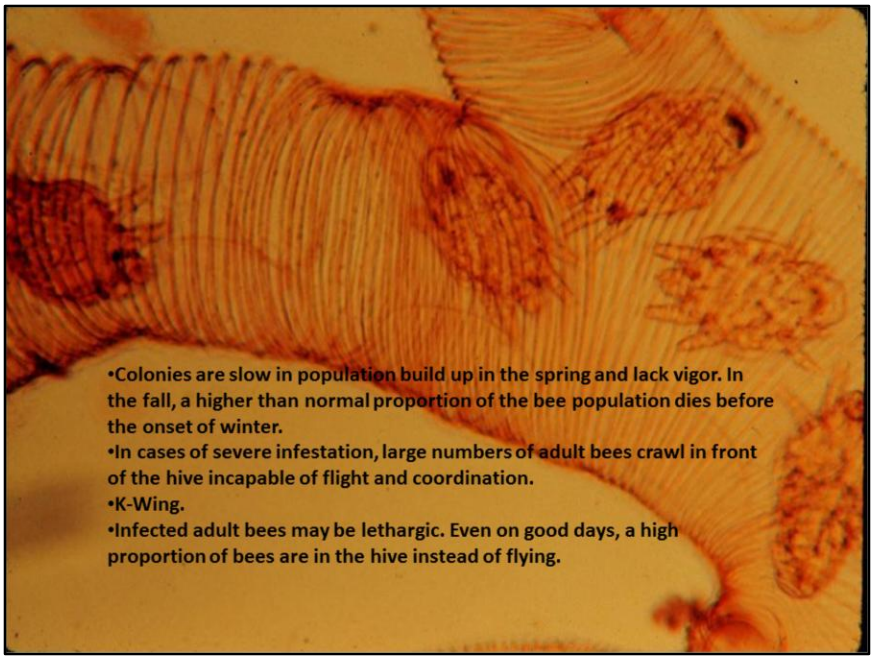
First discovered on the Isle of Wight (UK)
Several quarantine efforts starting in the early 1900's limited their prevelance as late as 1985
Main cause – movement of bees by beekeepers
HBTM –only transferred between live adults

"The tracheal mite, *Acarapis woodi*, is a serious and growing problem for Kentucky beekeepers. The microscopic internal mite clogs the breathing tubes of adult bees, blocking oxygen flow and eventually killing them. Also called acarine disease, it affects the flight efficiency and causes a large number of crawling bees outside the hive that are unable to fly. The inability to fly can contribute to losses of field bees and reduction of food stores in the colony. Another symptom is the abnormal "disjointed" position of the wings of walking bees." Kentucky Dept. of Agriculture.

- Tracheal mites can't be seen with the naked eye. Confirmation of infestation requires microscopic examination.
- Tracheal mites spend their lives in the bee's trachea (with the exception of moving to another bee).
- Infected colonies are most likely to show signs of infestation in late winter early spring when mite populations reach their peak.
- Bees with tracheal mites show higher than normal bacterial counts in their hemolymph.
- Some colonies are resistant and unaffected by tracheal mites, while other colonies may be severely affected and collapse. Buckfast bees were bred for resistance.
- Tracheal mites have been all but forgotten.....

Spring dwindling- winter bees dying too soon /
Dead bees outside
Leaving only the queen and a handful of workers
K wing
Lots of honey left
(Spiracles-tracheal opening)


•Colonies are slow in population build up in the spring and lack vigor. In the fall, a higher than normal proportion of the bee population dies before the onset of winter.
•In cases of severe infestation, large numbers of adult bees crawl in front of the hive incapable of flight and coordination.
•K-Wing.
•Infected adult bees may be lethargic. Even on good days, a high proportion of bees are in the hive instead of flying.

- Before applying chemical controls, closely examine the colonies for signs of HBTM infection. Look for:
  - adult bees crawling in front of the hive
  - lack of vigor
  - display of K-Wing
  - Slow build up
  - Dysentery
- When symptoms have been noted, a chemical control may be applied without having to collect bee sample for laboratory analysis. Lab analysis is slow, labor intensive and expensive.
- In Canada, **menthol** and **formic** acid have been registered for control of HBTM.
- Apply chemicals only in spring or fall, with honey supers removed.
- Select for tracheal mite resistant bee stock, or purchase resistant stock from a bee breeder.
- Increased incidence and severity of infestation is worsened when bees are stressed.
- Stress factors:
  - presence of varroa and other pathogens
  - poor forage availability
  - too many colonies placed in a small area
  - Poor hive equipment
  - inclement weather
  - Too much beekeeper interference
  - Feeding?
- Preventative measures include:
  - Swarm caution
  - reduce movement of colonies and avoid high density areas
  - don't introduce colonies from infected areas
  - Sanitary practices

Grease patties-oil ,sugar,wintergreen,salt
Menthol cyrstals
Formic vaporization
If your bees are not thriving and you have checked for everything else – check for tracheal mites

Peak –late winter (January)