

Name: _____

1. Varroa Mites are attracted to drone brood pheromone more than worker brood pheromone.
 True
 False
2. Formic acid is:
 - a. a good option for varroa mite treatment in December
 - b. not safe to handle without correct safety precautions (e.g. nitrile gloves, safety glasses, respirator)
 - c. not effective on tracheal mites
 - d. safe for use without a respirator providing ambient temperatures are above 18 degrees Celsius.
3. A foundress varroa mite will lay her first egg approximately 60 hours after entering the cell. This egg will:
 - a. hatch and consume competing eggs
 - b. hatch approximately 30 hours after the adult bee emerges
 - c. be a male and mature in approximately 6 to 7 days
 - d. require feeding of mite jelly by foundress mite to ensure it reaches sexual maturity in time to breed with sister mites
4. Tracheal mites live:
 - a. in the spindle hairs of the honey bee
 - b. between the abdominal sternites, as with varroa mites
 - c. on other synergistic insects in the bee hive and deposit their eggs in the anterior spiracles of the bee when sexual maturity is reached
 - d. in the trachea of the honey bee
5. When the colony is building and there is lots of capped brood:
 - a. most of the varroa mites are in the phoretic state attempting to relocate to other colonies (i.e. phorecy)
 - b. a natural drop of three mites per day indicates a total of six mites in the hive (based on Dr. Marla Spivak's testing through University of Minnesota)
 - c. more of the varroa mites are in the brood, parasitizing larvae/pupae than on the bees (phoretic)
 - d. there are no attendants to care for the queen
6. Testing for Varroa can be done through:
 - a. multiple choice including true and false questions
 - b. sticky bottom board, sugar shakes or alcohol wash
 - c. testing drone brood with an uncapping fork in January and February
 - d. a 24 hour Apistan Strip test in honey supers with sticky bottom board
7. Oxalic and Formic acid are approved for use under organic standards for honey production.
 True
 False

8. It is best to use the 72 hour natural drop count rather than a 24 hour natural drop count because:
- 24 hours is too soon to re-visit the bee yard
 - it takes a minimum of 48 hours for varroa mites to filter through the cluster down to the sticky board
 - a mean average of three days is a more accurate indicator; drop levels can vary from day to day depending on weather, colony activity, etc.
 - 72 hours allows for the full brood cycle of the varroa mite (i.e. the foundress mite lays her first male egg 60 hours after the cell is capped)
9. The foundress varroa mite enters the cell:
- by piecing a small hole in the wax capping and climbing in under the larvae
 - as soon as the egg hatches and nurse bees deposit royal jelly (end of day 3)
 - and immediately parasitizes the worker larvae
 - just prior to capping and hides in the royal jelly
10. If you want to achieve a high phoretic mite kill you should:
- freeze drone brood in February
 - use an oxalic dribble or vapourizer when the colony is broodless
 - use an oxalic dribble or vapourizer in mid July
 - use ApiPhoretic-ii strips after removing honey supers in August
11. Thymol is a product which:
- beekeepers use to attract swarms to bait boxes
 - kills varroa mites as well as tracheal mites
 - is sold as a topical solution to reduce the swelling associated with bee and wasp stings
 - is not approved for use in British Columbia
12. HopGuard II is approved for use in British Columbia but not in Washington State.
- True
- False

Bonus questions:

- Please describe everything you can about deformed wing virus. (E.g: how it got there, what it looks like, how serious it is, solutions)
- If you see mites on honey bees it is an indicator of what? Please describe.