The EAS Master Beekeeper Program

Part 2

Self-test questions

The oral and written exams

THE ORAL EXAM

A sample question might go something like this:

> "I took the beekeeping class this year. It is August now and I have two colonies. I just checked them and one is dead. It was killed by wax moths. I don't remember much about wax moths from class – they went over it really fast. But I'm upset and don't want this to happen again. Please tell me what I should look for to prevent this happening again."

Each question is worth 25 points, and the candidate must earn a score of 85 or higher from two of the three examiners in order to pass.

THE WRITTEN EXAM

The written exam is closed-book. Questions are presented as multiple choice, true-or-false, and fill-in-the-blank, along with some short essay-style questions. The passing grade is 85.

True or False:

1. Granulation of extracted honey means honey spoilage, so consumers often throw it out – but it can still be used to feed a bee colony.

2. Bee bread is pollen stored in beeswax cells of the brood nest. It provides the 10 required amino acids, necessary cholesterol, fats, vitamins and minerals, plus most of the carbohydrates needed by larvae and newly emerged adults for normal development.
3. Extracting surplus honey requires ownership of (or access to) an extractor plus settling/ bottling tank. To sell honey, the beekeeper needs to heat and ultra-filter the liquid for improved shelf life of extracted honey bottles.

Multiple Choice

1. The mandibular gland of the queen produces a pheromone that has several functions, including:
   A. Hive orientation pheromone
   B. Queen identifying pheromone
   C. Alarm pheromone
   D. Swarming pheromone
2. The brood disease European Foulbrood (EFB) is:
   A. Most likely detected by examining capped brood
   B. Caused by a bacteria
   C. A common symptom of CCD
   D. Readily distinguished from other diseases/chilled brood by odour
3. The spring buildup of a bee colony:
   A. Can double the colony population in two brood cycles
   B. Is independent of the amount of stored bee bread reserves

C. Is dependent upon the queen's ability to lay 2,000 eggs per day

D. None of these responses – spring buildup is temperature related

Fill in the Blanks

1. The worker scent gland is located on the _____ body region; it is also termed the _____ gland. When releasing the scent, the bee's characteristic body position is _____.
2. Spring management initially might involve reversing of brood boxes or feeding bees a _____ sugar syrup to _____ the colony to grow.

   An alternative to reversing boxes is to checkerboard with drawn frames. What two things might reversal or checker-boarding help accomplish within the next month?

   1. _____
   2. _____
3. L. L. Langstroth is credited as discoverer of the first practical _____. He understood the concept that bees have _____. This hive (or book he wrote on how to use it) was not a financial success for Reverend Langstroth. What else did he do to make money in bees? _____.

Essay Questions (10% of the exam will be essay questions – grammar is not graded)

1. You just started a bee colony last year and now you want to make your bees "pay back" your investment. Develop a reasonable plan designed to allow you to recoup your initial investment (assume $500) in three years, beginning the second spring, with a single

overwinter surviving bee colony (assume you have above-average survival of colonies and nucs).

2. Spring management has three distinct phases – buildup, keeping together, and adding storage space. What two things can be done to bolster slowly developing spring colonies, and when are they done? (in bee population terms – not calendar date). (2 points)

   What does "keeping colonies together" mean, and how can it be achieved? (2 points)

   And finally, how should extra space be added to a fully developing colony in spring? (1 point)

ANSWERS

Oral Exam:

Your answer should include at least three of the possible answers listed below:

- Wax moths do not kill strong colonies – they move into weak colonies.
- You need to maintain strong, healthy colonies.
- Wax moths only attack frames/wax which have had brood in them.
- In order to kill wax moth eggs, you need to freeze the frames.
- Identify one of the following as causes of weakened colonies:
  - Pesticide/chemical exposure
  - Swarming
  - Starvation
  - Queen problems
  - Pest problems such as *varroa*, skunk, or bear

- Was the colony weakened by disease?

Written Exam:

True of False

1. False. Granulation does not indicate that honey has spoiled. It can be re-liquefied for human consumption (if crystals are large and unpleasant tasting) by heating. Crystallized honey can be fed to bees, but it's best to liquefy and dilute it before feeding during winter confinement.
2. False. Bee bread contributes virtually no carbohydrates to a bee's diet.
3. False. Ultra-filtering is not required, and only very large packers have access to such equipment. Ultra-filtering will, in fact, extend the shelf-life of a liquid pack.

Multiple Choice

1. B. Queen identifying hormone.
2. B. Caused by bacteria.
3. A. Can double the colony population in two brood cycles

Fill in the Blanks

1. abdominal; Nasonov gland; head down, abdomen elevated, wings in motion.
2. dilute (or light, or stimulative); stimulate (brood expansion); brood expansion; swarm prevention.
3. movable comb (frame) hive; bee space; sold Italian queens for $1 each.

Essay Questions

1. Artisan/varietal honey sales: 50 lb. of honey during the second, third and fourth years at $2 per unit profit = $100. (Assumes nucs do not weaken the original colony and it continues to survive the winters.)

   Sale of nucs: make two nucs in each of the second and third years. Keep one of the nucs from the second year (you now have two hives). Sell the remaining nuc in the second year and both nucs in the third year at $50 profit each = $150. (Assumes nucs survive.)

   Rent four colonies (two of yours and two from a neighbour who bought nucs from you) to a local blueberry grower in the fourth year at $30 profit each = $120.

   Potential sale of value-added bee products including honey, wax, creams, lip balm, shampoos, soap, candles, etc.

2. Feeding dilute sugar water as soon as flight starts; having a young queen (re-queen the previous year); reverse brood boxes as flight improves and/or opening the brood nest.

   Keeping colonies together means keeping colonies from making swarm cells. You can achieve this by having a young queen, as well as by moving brood and/or adults about the hive (or use it to make splits) so the queen always has two frames of drawn comb available for expanding her egg laying. Initiate the second alternative when the queen cells first appear, after having eliminated those present.

   Adding space means supering. The first super should be put on (above the queen excluder) early (with the fruit bloom) and monitored for activity. Add the second and third supers when the first is 50% occupied (add it above or below the existing super).

For more information about the EAS Master Beekeeper program, or for access to practice exams, visit www.easternapiculture.org.