

NAME: \_\_\_\_\_ Start: \_\_\_\_\_

## EAS Master Beekeeper Lab Exam 2014 Kentucky

The EAS lab exam contains 25 STATIONS each with one or more items. There are questions related to the items at each station worth a total of 4 points each station, total exam value 100 Pts. **Passing grade = 85 Points.** Read the questions carefully. Do not assume anything and answer the question asked. You may touch, pick up and closely examine each of the items – do NOT remove any labels (A,B C) or move any item to another station unless given permission to do so. IF question, item or anything is unclear **Ask for Clarification.**

**1 photo of a chemical treatment (Apivar plastic strip) being inserted between brood frames. NOTE Strip in package can be substituted in place of photo – change first question)**

### STATION 1: Photo of chemical treatment

1A. In photo, beekeeper is inserting Apivar strip between frames of what area of his/her hive?  
\_\_\_\_\_

2A. This treatment is to control \_\_\_\_\_ It should remain in the hive for \_\_\_days.

3A. Is it legally permissible to treat your bee colonies as shown if honey supers are on or you anticipate supering next week: YES or NO (CIRCLE ONE).

4A. Is active ingredient of this product a neonicotinoid ? YES or NO?



ANS: brood area – varroa mites, 42 days: NO: NO is formamidone Amitraz)

**2. 5 specimens A B C, D and E at least one of which is a wasp. A=Yellowjacket, B= honey bee drone C= paper wasp D= flower fly. E bumble bee**

### STATION 2: There are 5 insects before you.

2A. Which one(s) is/are a wasp? A B C or D (CIRCLE ALL THAT ARE WASPS)

2B. IS there a yellowjacket here YES or NO (if yes give correct letter) \_\_\_\_\_.

2C. Is there a honey bee here YES or NO (if YES give correct letter) \_\_\_\_\_

2D. One of these insects can be controlled via use of trap at apiary perimeter. Which one?  
\_\_\_\_\_

ANS YJ =A & C: A is YJ; YES (drone)A the YJ

**3. Frame removed from hive that has cells of disease or malformed 6-sided worker cells (transition cells) or drone cells or drone layer or laying worker.**

**STATION 3: View frame before you.**

3A. (2 pts) Give two distinguishing characteristics (without actually opening cells) that allow you to ID cells of fully ripened honey and cells of capped brood: 1) \_\_\_\_\_ and 2) \_\_\_\_\_.

3B. What is indicated by the marker (Hint pollen is incorrect answer) \_\_\_\_\_

3C. What would you do about the situation shown at A? \_\_\_\_\_

ANS: Honey cappings indistinct, flat, lighter in color not clearly 6-sided vs brood cappings brown, slightly convex clearly hexagons. ANS find something irregular on frame itself or in comb could be disease or transition cell or drone cell or cell of bee bread (pollen would be incorrect answer) ; answer depends on what is indicated.

**4. Varroa mite – under scope or hand lens**

**STATION 4: Here is a critter found in bee hives:**

4A. With \_\_\_\_\_ pair legs and \_\_\_\_\_ antennae, this creature (called a \_\_\_\_\_) is more closely related to \_\_\_\_\_ than to its honey bee host.

4B. This creature is a vector for the disease \_\_\_\_\_.

4C. How does this disease express within the colony (i.e. what do bees with this disease look like to the beekeeper?)

ANS: 4; 0 varroa mite (*V destructor*); spiders; several viruses like DWV; DWV crumpled wings)

Photo of AFB disease ropy test



**STATION 5: Illustration shows field (in-hive) ropy test.**

5A. Is this test POSITIVE, NEGATIVE or INCONCLUSIVE? (CIRCLE ONE).

5B. What is the ropy test a test of? \_\_\_\_\_.

5C. What do you now do to confirm that the field (ropy) test shows? \_\_\_\_\_.

5D. With a positive confirmation, what should you next do? \_\_\_\_\_

ANS: Positive; AFB; get lab confirmation from USDA, or otehr lab or the test kit; destroy the hive.

Chalkbrood mummies or comb with EFB or Sacbrood

**STATION 6: Examine frame before you.**

- 6A. Is this a “spring stress” disease YES or NO? \_\_\_\_\_
- 6B. Can this condition be legally treated with a chemical antibiotic YES or NO? IF YES, which one? \_\_\_\_\_
- 6C. What would be the most effective non-chemical treatment for this disease?  
\_\_\_\_\_

ANS: yes, EFB yes chalkbrood or sacbrood no; EFB terramycin; requeening or improve hive conditions

7. Package Apiguard or Api-LifeVar

**STATION 7: Chemical treatment.**

- 7A. This is a legally approved chemical treatment for \_\_\_\_\_
- 7B. What is the chemical family (group)? \_\_\_\_\_
- 7C. Specifically what months would you best use this chemical \_\_\_\_\_ and how long (days) would it be used in a hive being treated? \_\_\_\_\_

ANS: Apiguard - mites; slow release gel of essential oil thymol; summer or autumn months (external temps above 59 degrees); 14 days (2 weeks). ApiLifeVar mites, essential oil (mixture of 4) summer or autumn months XXx

8 Mouse nest or wax moth in comb

**STATION 8: Hive pest**

- 8A. What is common name of this hive pest? \_\_\_\_\_
- 8B. On scale of 1 to 5 how serious is this pest? 1 (very minor), 2, 3, 4, or 5 (very major)  
CIRCLE ONE. WHY? \_\_\_\_\_
- 8C. If you deem it necessary, what could be used to mitigate damage to your hive from this pest?  
\_\_\_\_\_
- 8D. What chemical might be used (but is currently discouraged) to control this pest?  
\_\_\_\_\_

Mouse - 1 to 3 seasonally Fall damage comb perhaps; entrance reducer; elevate or use mouse poison; wax moth - 2 to 4, feeds on and may destroy drawn brood comb in storage; PDB, CO<sub>2</sub>, freeze comb, proper storage of brood comb, strong colonies

9 Small hive beetle – adults or larvae

STATION 9: You find these small beetles in your weak hive.

- 9A. What do you need to do to get them IDed as small hive beetle or determine if they are another scavenger beetle? \_\_\_\_\_.
- 9B. If the beetles were confirmed as small hive beetle would you need to consider killing this hive YES or NO? Why? \_\_\_\_\_
- 9C. What would you use inside your colony for adult control? \_\_\_\_\_.

ANS: capture some samples send to lab for ID; NO (not necessary since they do not transmit a disease); a trap such as beetle blaster.

10 Selection of chemicals labelled A=Mite Away II, B=Honey Bee Healthy, C= TM( oxy-tetracycline – HCl), D=lemongrass essential oil (or menthol crystals), E=Tylan

**STATION 10: Chemical treatments.**

10A. Which of the above (A to E- note more than one may apply) is an essential oil that, although not legally approved is frequently used by beekeepers for varroa mite control?

\_\_\_\_\_.

10B. Which of the above antibiotics is effective on bacteria? \_\_\_\_\_.

10C. Which of the above is useful to control varroa mites? \_\_\_\_\_

ANS: B & D; C(although resistance of AFB known) and E; A

**STATION 11 Photo before you.**

11A. What likely caused the comb damage on right of frame) shown here? \_\_\_\_\_

11B. What are bees doing to repair this damage (be specific)? \_\_\_\_\_

11C. Why would this nearly repaired frame be a candidate for rotation out of the spring brood nest? \_\_\_\_\_

11D. Do you see evidence of a brood disease on this frame? YES or NO? Explain

\_\_\_\_\_

ANS: wax moth or beekeeper; they are drawing drone comb; don't want too much drone comb (right 1/2 of frame all drone comb) because we need worker brood in spring to replace aging adult population; NO frame has ripening nectar (liquid in cells) and capped honey but NO BROOD

11



12



**STATION 12: Photo before you.**

12A. What is shown in this photo (in general terms)? \_\_\_\_\_

12B. What specific signal(sign) is the beekeeper examining for in the developmental stage at end of toothpick? \_\_\_\_\_

12C. Does this development stage (end of toothpick) appear healthy YES OR NO?

12D. On what basis did you select yes or no choice? \_\_\_\_\_

ANS: beekeeper removing a bee pupa - or pre-pupa - to check on its health; brood disease which would be seen as off color; YES; looks healthy - white not yellow or brown, glistening, fully formed.

### 13 Selection of queen cups and cages

**STATION 13: There are several items all related before you.**

13A. What is reason the plastic cups (A) are preferred over the beeswax cups (B)?  
\_\_\_\_\_.

13B. Who is the creator/seller of the plastic cells (and hence their name)? \_\_\_\_\_.

13C. Of the introducing cages which one is named after developer C, D or E? \_\_\_\_\_

13D. What is the name of this cage? \_\_\_\_\_

ANS reusable &/or not contaminated by pesticide; JZBZ: C Benton mailing cage.

### 14 Marking pen and queen catching cage, marking device and cell protector cage

STATION 14. There is a colored marking pen before you. Use the mnemonic (a formula/rhyme or in this case a catchy phrase, used to help memorize something) BEES WAXED YOUR RED GARTERS where the first letter represents a color.

14A. Is 2014 the correct year to use this color YES or NO (CIRCLE ONE).

14B. What would you use as a substitute for paint? \_\_\_\_\_.

14C. Of the cages shown what would be the best one to utilize in combination with this marking pen B C or D ? \_\_\_\_\_

14D. For another of the devices shown (excluding device of previous answer) ID it and give function : It is \_\_\_\_\_ and function is \_\_\_\_\_

ANS: NO (must be green ); other paint of fingernail polish marking device. MUST ID queen catching cage or cell protector cage.

STATION 15: Before you is a “bee” that is NOT entirely anatomically correct.

15A. Where would the “wasp-waist of the bee likely occur if anatomically correct? At A (behind back of head), at B (behind wings), at C (behind 1<sup>st</sup> black line) or at D (behind 2nd black line). (CIRCLE ONE)

15B. If anatomically correct and we cut down the middle (front to back) where would we likely encounter the malpighian tubules? At A (behind back of head), at B (behind wings), at C (behind 1<sup>st</sup> black line) or at E (end of abdomen). CIRCLE ONE) What is function of malpighian tubules  
\_\_\_\_\_.

5C. Although this bees lacks a”wasp-waist” there is another serious error in anatomy. What is it?  
\_\_\_\_\_

5D. Bees have more than a single eye lens (as in toy) – how many lenses in each eye? \_\_\_\_\_

ANS: B, C excretion, legs and wings (I pair); 3400



**STATION 16: This is a photograph by MB Beekeeper/photographer Steve McDaniel.**

16A. What bee life stage is this bird prepared to consume? \_\_\_\_\_ .

16B. What is the name of piece of comb (in photo shown sitting on top of a hive) used in photo?  
\_\_\_\_\_.

**ANS: prepupa; piece brood comb (burr comb OK)**

**17 A hive tool A and smoker B**

**STATION 17. Before you are two common pieces of equipment all beekeepers should be using to inspect a bee hive.**

17A. The item A is \_\_\_\_\_. It is used to free \_\_\_\_\_ from each other and the hive boxes.

17B What material needs be loosened by Item A to freely inspect a hive? \_\_\_\_\_.

17C. The item B is a \_\_\_\_\_. They cost approximately <\$25, \$25-35, > \$35.

**ANS: Hive tool frames; propolis Smoker \$20-35**

**18. Photos of foraging bees - A (mustard) & B (apple) on flower**

**STATION 18 Examine the photo of bee on one of spring “yellows”**

18A. This yellow spring “weed” is DANDELION, FORSYTHIA MUSTARD (CIRCLE ONE)

18B. Does bee look like a pollen or nectar collector? \_\_\_\_\_ Why? \_\_\_\_\_

18C. Photo B is bee foraging on a wide spread spring fruit – is it APPLE, PEACH or CITRUS?

18D. Why might this photo demonstrate an effective pollinating bee? \_\_\_\_\_

**ANS Mustard; nectar (proboscis in flower and no pollen; Apple Foraging on flower on top of anthers.**



**Bee pinned under microscope (or hand lens)**

**STATION 19 Bee Anatomy**

19A. What is structure name at pin A? \_\_\_\_\_ What is its specific function? \_\_\_\_\_

19B. The FIRST STRUCTURAL THING pin B goes through is \_\_\_\_\_

19C. See Pin C – it is placed in \_\_\_\_\_ section of bee body and internally it likely has entered:  
A the Honey Stomach, B the ventriculus, C the aorta D the spiracle or E the rectum. (CIRCLE ONE)

**ANS: corbicula, exoskeleton, A abdomen (honey stomach)**

**20. Propolis and honey and beeswax & royal jelly ?**

**STATION 20: Before you are some bee products. The rest of the world sees these as useful for human and animal health.**

20A. The jar of extracted honey has both an external and internal medicinal use – Name both such uses by humans External \_\_\_\_\_ Internal \_\_\_\_\_

20B. The propolis is sold in drug stores for external human use. How is the liquid product developed from propolis harvested from a hive? \_\_\_\_\_

20C. The bee collected pollen – how do you harvest pollen from a bee hive? \_\_\_\_\_

**ANS External burns/body sores/ulcers internal cough suppression/sore throats; Propolis dissolved in alcohol (or organic solvent); via pollen trap at entrance (or bottom of hive)**

**21 unassembled frame with duragilt foundation bottom piece incorrect +, A eyelet punch, B frame cleaner, C wax tube**

**STATION 21: Here is an unassembled frame and sheet of foundation + 3 frame related items**

21A. Does this frame and foundation assemble correctly? YES or NO IF NO what needs to be changed to complete a frame assembly? \_\_\_\_\_

21B. There are 3 frame-related equipment items – What is A \_\_\_\_\_ Would this be useful in assembly of frame and foundation at this station YES or NO WHY? \_\_\_\_\_

21C. ID one of the two remaining items B \_\_\_\_\_ or C \_\_\_\_\_. How would this item be used relative to this frame and foundation assembly?

**ANS: NO (bottom bar type incorrect); A-eyelet punch NO not needed with duragilt foundation; B= frame cleaner or C wax tube (only wax tube might be used to secure foundation at top bar).**

**Jar of honey – container of comb honey + cut-comb or section if available**

**STATION 22 Honey judging**

22A. If you enter your extracted honey in local fair the judge may measure moisture content using a \_\_\_\_\_. What level should the liquid be below for full points? \_\_\_\_\_

22B. Cleanliness is a major factor in judging extracted honey – how many points would you award this jar \_\_\_\_ (20 Maximum) and why this score? \_\_\_\_\_

22C. Judging honey in the comb means points off for travel stain and lack of capped cells – how does this section stand in your mind as a judge? \_\_\_\_\_

**ANS: refractometer below 18.6 moisture; depend on jar; depends on section  
Do STATION 23-24 & 25 on site**

