

Virginia State Beekeepers Association

Master Beekeeper Program

Journeyman Level

The Journeyman is the second step in the Master Beekeeping Program. A Journeyman is a skilled beekeeper who has successfully completed the Apprentice qualification and continued to gain knowledge and experience. Journeymen are considered competent and fully qualified keepers.

Study Outline – The following outline provides a list of topics with which one should be familiar before taking the written and practical exams for the Journeyman level. Most of the topics will be covered in intermediate level beekeeping courses and are reviewed in many beekeeping texts.

Honey Bee Biology:

A. Review basic Honey Bee Biology, Physiology, and Colony Organization as required for the VSBA MBP Apprentice Level.

B. Honey Bee and Colony Biology in detail. This is a more in-depth study of the bee compared to the Apprentice.

Swarming:

Causes of swarming

Explain in detail the progression of signs and colony preparations for swarming during spring build up (queen production, queen weight loss, etc.)

Time of swarming (season, relative dates for local area)

What management practices are used for swarm control and how do they relate to swarm preparations

Reversing

Supering

Checkerboarding

Excluders in swarm prevention

Demaree method

Snelgrove board

Nest site selection and swarm movement

Describe practices for swarm capture and trapping Queens and Re-queening:

Queen pheromones –What pheromones (groups) do queens produce and what functions do they have (QMP, Retinue pheromones, egg pheromones)?

How are the major queen pheromones distributed in the hive?

What factors are important in queen recognition and what additional factors are important in queen replacement (re-queening)?

Describe at least three methods for re-queening a hive.

What method(s) is/are the most effective and why?

When should colonies be re-queened and what are the reasons for re-queening?

Queen production

Describe in detail three methods beekeepers use to produce queens from eggs. Include timing, actions and equipment.

Discuss the role of the drone in respect to queen rearing

Explain the pros and cons of marking and clipping queens

Identify what year the queen was produced by the color she is marked

Understand and explain the pros and cons of queen banking.

Winter Biology:

What adaptations do honey bees have to survive winters in temperate climates?

Describe the winter cluster and how bees regulate temperature.

Describe the winter brood rearing cycle.

Describe fall and winter management practices and how they are related to colony biology.

How strong should colonies be for wintering and why is colony strength important?

What pests/diseases are of major concern during the winter?

Bee Diseases and Pests

A. Bacterial Diseases

Describe the biology, cause, symptoms, and field recognition cues for American foulbrood and European foulbrood

Why is AFB such a serious problem?

What chemical (antibiotic) treatments are available for AFB and EFB?

What non-chemical treatments are available?

B. Viral Diseases

What is the major virus disease of brood? Describe its biology and symptoms.

What treatments are recommended?

What is Deformed wing virus and how is it spread?

What are the major paralysis diseases of adult bees and what is their significance?

C. Other Diseases

What is Nosema and why is it important?

Describe the general biology of Nosema (apis and ceranae) and its impact on bees?

How is Nosema diagnosed in the field?

How is Nosema treated?

What is chalkbrood and how does it affect bees? What causes the disease?

What treatments are available for chalkbrood?

D. Honey Bee Mites

Describe the general biology and life cycle of the Varroa mite.

What problems do varroa mites cause?

Describe four methods for sampling bee colonies for varroa.

What thresholds should be used for deciding the treatment of colonies for varroa?

What miticides are registered for varroa control and how are they used?

What non-chemical approaches can be used for varroa control/management?

How effective are they?

What is PMS?

Describe the general biology and life cycle of the tracheal mite.

What problems do tracheal mites cause?

How does one sample for tracheal mites?

What treatments can be used for tracheal mites? Is treatment necessary?

E. Warm blooded pests. What are issues, symptoms, prevention, and treatments.

F. Other Health Related Problems

What is CCD and what are the symptoms?

What should be done with a colony/equipment thought to have CCD?

What are Small Hive Beetles and what is their life cycle?

How do small hive beetles impact colonies and stored equipment?

What procedures are used to control small hive beetles?

Honey Production, Extraction and Bottling

A. Management Practices for Honey Production

What management practices are used to insure strong colonies for honey production?

Describe the process and strategies of supering colonies for honey production (with drawn comb and foundation; strong and weak hives).

Argue for and against the use of queen excluders.

When do the major honey flows occur in your area?

Describe the practices used for the production of comb honey.

What is travel staining?

B. Honey Removal from the Hive

When should honey be removed from a hive and how do you tell if it is "ripe".

What are the advantages and disadvantages of the different methods of removing bees from honey supers?

What methods should be used for the removal of section comb honey?

How should full honey supers be stored after removal from a hive? Why?

How should empty honey supers be handled/stored after extraction?

C. Extraction and Bottling

What is a hot room and what is its function?

Describe the extraction process and the steps involved.

Describe the general steps used to clean and bottle honey.

Describe methods to handle "wax capping's".

What information needs to be on a jar label for selling honey?

Know the proper nomenclature of the different areas of the label.

How is honey moisture content and color determined?

How should comb honey be handled and stored? Why?

Honey Plants of Virginia

A. Nectar and Pollen Plants

What are the major spring honey plants and when do they bloom?

What are early spring nectar and pollen plants important to colony buildup?

What are the major summer honey plants and when do they bloom?

What are the major fall honey plants and when do they bloom?

B. Flowers & Pollination

Define pollination, cross pollination, self pollination, fruit, seed

Explain the honey bees relationship to pollination

Discuss the differences between monoculture/polyculture, flower fidelity/polylectic, and perfect flowers/ imperfect flowers

Label and identify the parts of the flower as well as discuss the role they play in pollination

Non-Honey Bee Stinging Insects

What insects cause the most stinging problems and at what time of year do major problems occur?

Be able to recognize and describe the basic biology (and life cycle) of the

Yellow jackets, Bald-faced hornet, and Giant European hornet. What are their nests like?

Be able to recognize and describe the basic biology (and life cycle) of bumble bees and carpenter bees.

What are "sweat bees"?

What steps would you recommend for the removal/control of a yellow jacket or bumble bee nest?

Safe Use of Pesticides

A. For each of the following materials approved for use in or around bee hives, be able to describe the procedures for safe handling, use, storage and disposal.

Apivar

Apiguard

ApiLife VAR

Apistan (fluvalinate)

Bee Go (butyric anhydride)

Checkmite (coumaphos)

Fischer's Bee Quick

Formic Acid (Mite-Away II)

Fumagillin (Fumigilin-B®; old name Fumidil-B)

Guardstar (permethrin)

Mite-A-Thol (menthol pellets)

Oxalic acid

Terramycin (tetracycline)

Tylan (tylosin)

Sucroside

Paramoth (para-dichlorobenzene)

Africanized Honey Bees

What is the Africanized honey bee and what is its history?

Where are Africanized honey bees found in the U.S.?

How are AHB hives identified in the field and laboratory? Who conducts the tests?

What are the concerns about Africanized honey bees?

What should be done with a colony suspected to be Africanized?

Honey bee nutrition and feeding

Carbohydrate types and sources

In hive/Top feeders/Boardman feeders/ Community feeders

Protein supplementation types and methods

Practical Hive Inspection – What is involved?

Be able to demonstrate proper hive inspection techniques.

Locate the queen and demonstrate at least 3 re-queening techniques.

Evaluate queen quality

Demonstrate management techniques for swarm prevention and control.

Demonstrate techniques for supering colonies (with drawn comb, foundation or for comb honey).

Demonstrate colony preparations for wintering.

Be able to demonstrate techniques for disease inspection, mite sampling.

Demonstrate techniques for the removal of honey supers.

Be able to explain and demonstrate hive preparations for moving.

Some suggested references for the Journeyman Beekeeper would include:

The Beekeepers Handbook, By Diana Sammataro and Alphonse Avitabile

First Lessons in Beekeeping by CP Dadant

The Hive and The Honey Bee – Dadant & Sons, Inc.

Better Beekeeping by Kim Flottum

Understanding Bee Anatomy by Ian Stell

Honey Bee Biology & Beekeeping – Dewey Caron – Wicwas Press

What Do You Know ~ Clarence H. Collison – Root Publications

Beekeeping Principles by Dr. JE Tew

Queen Rearing and Bee Breeding by H H Laidlaw & R E. Page Jr.

Queen Rearing Essentials by Larry Connor

Honey Plants of North America – John H. Lovell – A I Root Co.

Eastern Apiculture Society (EAS) web site

www.vdacs.virginia.gov

MAAREC – Mid Atlantic Apiculture Research & Extension Consortium -

<http://agdev.anr.udel.edu/maarec/>