

MODULE 7

SELECTION AND BREEDING OF HONEYBEES

SYLLABUS

Aims

The Modules are designed to give beekeepers who have passed the Basic Assessment the opportunity to study the craft of apiculture further with the goals of obtaining an Intermediate Theory Certificate for passing Modules 1 to 3 and any other module plus an Advanced Theory Certificate for passing Modules 1 to 3 and 5 to 8.

Conditions of Entry

The Candidate shall have passed the BBKA Basic Assessment or an equivalent Examination approved by the Board. The date when this certificate was obtained shall be entered on the application form.

The Candidate shall have kept and managed bees for at least 2 seasons. A statement to this effect, on the application form shall be signed by someone who is familiar with the Candidate's beekeeping.

A completed Application Form and fee shall have been received by the Local Examination Secretary at least six weeks before the date of the Assessment and this shall be received by the Secretary to the Board at least five weeks before the date of the Assessment.

Award of Certificates

A certificate will be awarded for each module passed and the pass mark will be 60% for all modules. (Credit 70%, Distinction 80%)

An Intermediate Theory Certificate will be awarded when modules 1, 2, 3 and one other have been passed. An Advanced Theory Certificate will be awarded when modules 1, 2, 3, 5, 6, 7 and 8 have been passed. For a beekeeper whose objective is to obtain the Advanced Certificate only, there is no requirement to pass module 4 as the items in this module are included in other modules.

In order to qualify for either an Intermediate or Senior Theory Certificate the necessary modules must be passed in a time period not exceeding 12 years.

The Master Beekeeper Certificate will be awarded automatically to a beekeeper who has obtained an Advanced Theory Certificate and the Advanced Certificate in Beekeeping Husbandry.

The Assessment

Each module shall consist of a written paper which shall be answered in a maximum of 1½ hours and shall have sections. **Candidates will be expected to use scientific names where applicable**

Two Examiners appointed by the Board mark each module. The marks given by the Examiners, marking independently, are scrutinised by the Moderator.

The final marks after moderation shall be sent by the Board Secretary to the Candidate.

MODULE 7

SELECTION AND BREEDING OF HONEYBEES

The Candidate shall be able to:-

- 7.1 give the principles of the selection of breeder queens and drones;
- 7.2 describe a system of record keeping used in the assessment of queens and their progeny;
- 7.3 give a detailed account of methods of queen rearing suitable for a beekeeper with five to ten colonies and methods more suitable for larger scale queen rearing operations;
- 7.4 give an outline account of a method of instrumental insemination and assess the role this technique could play in honeybee breeding;
- 7.5 give a detailed account of methods of queen introduction, the principles underlying the processes involved, the precautions to be taken, and the attendant difficulties in relation to different strains of bee and colony condition;
- 7.6 describe the setting up of mating nuclei and any precautions that need to be taken;
- 7.7 give an account of the **subspecies** and strains of honeybee commonly used by beekeepers in Europe with particular reference to their appearance and behavioural characteristics;
- 7.8 give an account of the important aspects of the behaviour of honeybees, in relation to breeding programmes;**
- 7.9 show an understanding of Mendelian genetics, particularly the inheritance of one gene with two alleles, and the concept of multiple alleles;
- 7.10 give an outline account of inheritance in the honeybee;**
- 7.11 describe the genetic basis of sex determination in the honeybee including parthenogenesis;
- 7.12 give an account of mitosis and meiosis showing an understanding of the unusual nature of meiosis in the drone honeybee;
- 7.13 describe in detail the reproductive system of the queen and drone with an outline account of sperm and egg production;
- 7.14 give a detailed account of the mating behaviour of honeybee queens and drones including the roles of pheromones and the concept of drone congregation areas;
- 7.15 describe the causes of drone laying queens and laying workers and ways to recognise the presence of these in a colony;
- 7.16 describe ways of dealing with colonies with laying workers and drone laying queens;
- 7.17 describe the signs of queenlessness and how this may be confirmed;
- 7.18 give a detailed account of methods of marking and clipping queens and the advantages and disadvantages of these practices;
- 7.19 to distinguish between queen cells produced under the emergency, supersedure and swarm impulses;
- 7.20 give an account of the problems inherent in cross breeding subspecies of honeybee;**
- 7.21 give an account of the advantages and disadvantages of inbreeding and out breeding and how it can be assessed;**
- 7.22 the effect of pathogens and pests on bee breeding.**

Arrangements

The Assessment venue and the Invigilation are arranged by the Local Examination Secretary. Approval for these arrangements shall be obtained from the Secretary to the Board at least five weeks before the date of the Assessment.

Application to Enter

These should be made through the Local Examination Secretary of the County Beekeeping Association or directly to the Secretary of the Board at the address given below. Applications are required at least six weeks before the date on which the Assessment is to be taken. Available dates for the Assessments will be announced in the Bee Press or may be obtained from the Board Secretary.

Application Form

Every application must be accompanied by a completed Application Form together with the Assessment Fee. Cheques should be made payable to BBKA. The dates when any relevant certificates were obtained must be entered on the Application Form. Certificates should not be sent.

Ensure that the Certificate of Qualification on the application form is completed. This is not necessary for re-sits.

Assessment Fees

The current fee for any Assessment may be obtained from the Secretary to the Board or the Local Examination Secretary.

AUTHORITY

The above is issued by the BBKA Examinations Board and all communications in respect of the Assessments should be addressed to:

The Secretary
BBKA Examinations Board
National Beekeeping Centre
Stoneleigh Park
KENILWORTH
Warwickshire
CV8 2LG

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