The National Diploma in Beekeeping.

Examination for the National Diploma in Beekeeping. March 20 th.2004

Paper A : Practical.

Instructions to candidates:

Time allowed 3 hours.
Answer **Four** questions only.
Use only **Black** pen for the text.
Pencil may be used for the diagrams.
Marks will be awarded for clear diagrams where relevant.
Write on one side of the paper only
Write your candidate number on the top of each sheet of answer paper.

Q1 a) Discuss the occurrence of chemical resistant Varroa in England and Wales under the following headings:

i) Explanation as to how resistance occurs.
ii) Initial resistance and actions taken
iii) Statutory legislation

b) Outline a local and national strategy for dealing with this problem.

Q2 a) Give the scientific name for the Greater Wax Moth.
b) Describe the life cycle and damage caused by it.
c) Explain the techniques that can be used to limit the damage caused by this pest.

Q3 a) Make a list of the factors to consider when setting up an Association apiary
b) Write a set of rules to be handed to each user of the apiary
c) Discuss what extra would be required if this apiary is also used as a teaching apiary where up to 20 students could attend a teaching session.

Q4 a) Distinguish between the terms ‘soft set’, ‘seeded’ honey and naturally granulated honey .
b) Describe the processing of a 10 litre (14.5kg) bucket of coarsely filtered, naturally granulated English honey into pound jars of liquid honey for sale to a local shop. Include details of the time and temperatures necessary to ensure that rapid re-granulation does not occur, giving a shelf life of 4 - 6 months.
c) Name the current English regulations relating for the sale of honey.
d) List the basic labelling requirements to satisfy current regulations for a 454 g. jar of English Honey.

Q5 a) Discuss the factors involved in initiating the urge to swarm in a colony of honeybees.
b) Explain the reasoning behind the so called '10 day inspection system' and the important criterion upon which it relies.
c) On a routine inspection in an apiary where honey production is the main aim, detail what action should be taken on discovering:

i) a small number of queen cells containing eggs and young larvae?
ii) a large number of emergency queen cells?

National Diploma in Beekeeping. Paper A. 2004.

Q6 a) It is suspected that a colony of honeybees is queenless. What steps should be taken by the beekeeper in an attempt to confirm this suspicion?

b) A honeybee queen is received in a mailing cage. Describe the steps to be taken to ensure successful introduction into a large aggressive colony of honeybees

c) List in tabular form the similarities and differences between a drone laying queen and a laying worker

Q 7a) Name the organisms currently notifiable under the current Bees legislation relating to bee diseases.

b) Describe the signs of European Foul Brood. and name the organism
Use the following headings:
time of death, brood pattern, unsealed brood, sealed brood, cappings, scales, smell.

c) What action should be taken by the beekeeper if EFB is suspected in a colony of honeybees

d) What is the current legal treatment in England and Wales available to beekeepers.

Examination for the National Diploma in Beekeeping.

March 20th 2004.

Paper B: Scientific.

Instructions to candidates:-
Time allowed 3 hours.
Answer Four questions only.
Use only Black pen for the text.
Pencil may be used for the diagrams.
Marks will be awarded for clear diagrams where relevant.
Write on one side of the paper only
Write your candidate number on the top of each sheet of answer paper.

Q1. In January 2000, the EU banned imports of honey from China due to the discovery of residues of illegal antibiotics in honey samples. Describe the implications of this ban for the UK honey retailing industry, possible reasons for the presence of the antibiotics, and suggest how Chinese honey producers might overcome the problem.

Q2. You are asked to give a lecture on "Foulbrood". Prepare notes for this purpose covering the natural history of the causative organisms, and control methods used in the UK and the USA.

Q3. Give an account of the work of any four of the following: Brother Adam; The Rev. Charles Butler; Dorothy Hodges; Francis Huber; Dr James Simpson Frederick Sladen.

Q4. *"The honey bee is too often considered in isolation, as if it were an exceptional insect. It is a typical member of the Hymenoptera. Most species of Hymenoptera - and most kinds of bee - are solitary insects, but Hymenopteran attributes have on various occasions provided the basis for social organisation (found elsewhere among insects only in the termites)".* C.R. Ribbands: "The behaviour and social life of honey bees". Describe sociality in two insects other than bees and compare and contrast it to that seen in honey bees.

Q5. It is now more than 60 years since Dr Karl Von Frisch first published his theories of dance communication in honey bees, but the topic remains controversial. Whilst most bee scientists accept the idea of dance communication for recruitment of workers, bees use a variety of navigational methods. Give an outline of the controversy, and discuss the techniques that a worker honey bee may use in order to find a food source.

Q6. Write notes on six of the following: Africanised bees; allergic reaction; drone congregation areas; compound eye; glycogen; laying workers; parthenogenesis; spermatheca; trachea.

Q7. Define the term pheromone, and describe the part that pheromones play in swarming and colony defence.

Q8. Describe and contrast the process of pollination in three of the following plant families: Asteraceae (Compositae); Fabaceae (Leguminoseae); Graminae; Salicaceae; Pinaceae; Orchidaceae.

Q9. There are over 250 species of bee found in Britain, of which the honey bee is only one. Give an account of the life histories of one species of solitary bee and one species of bumble bee, explaining how they differ from that of the honey bee, and outline how they may be managed for crop pollination.

Q10. Give an outline of the biology of the mite *Varroa destructor*. Define the term "Integrated Pest Management" and explain how the principle can be applied to *Varroa* control.