

## **COMPETENCES FOR VETERINARIANS SPECIALISTS IN BEEKEEPING**

### ✓ **ABOUT THE BIOLOGY AND PHYSIOLOGY OF BEES**

*Goal: differentiation between the normal physiological state of bee colonies and deficiency or pathological states. Discrimination of scientifically based actions and empirical innovations.*

- Identify and distinguish the individuals that make up the breeding nest and their population balances in connection with the time of their production cycle or season of the year.
- Recognize the biological cycle of the colony like orphanhood, swarming, in production or at rest.
- To know the colony's nutritional physiology. Recognition of the nutritional status of the colony: energy and protein stocks.
- Distinguish between the most commonly imported ecotypes in our beekeeping.
- To know the biology of bee reproduction, both at an individual level and as a complex organism.
- To know the particularities of the colony genetics.
- To know the results of hybridization by crosses between different bee breeds in the same area.

### ✓ **ABOUT THE HIVE AND APIARY MANAGEMENT**

*Goal: execution of basic operations which necessarily require previous practice.*

- Use personal protective equipment properly.
- Use the smoker as a necessary tool for managing bees in the right way.
- Carry out a correct review and inspection of the colonies, following a logical order: inspection of entrances, evaluation of the differences between colonies and decision-making regarding the general condition of the hives and the pathologies that could be present in them.
- Show proper behaviour in handling colonies. Solve a complicated situation in case of bites and first aid in case of an accident.

Organization of the material: pharmacy.

## ✓ ABOUT THE ZOOTECHNICAL MANAGEMENT

Goal: *zootechnical advice on beekeeping farms.*

- Recognize the different types of hives (and materials) and the singularities in their basic management. Differences between stationary and migratory beekeeping.
- To know the variety of productive orientations in beekeeping: honey, pollen, selection and breeding... (since management and needs may be different).
- To guide in the management of replacement: nuclei, knowledge of the controlled reproduction of bee colonies.
- Evaluate the beekeeping sites and be able to advise on where to set up an apiary.
- Know and explain the differences between conventional and organic production.
- Assure the bee's physiological needs (food, water, etc.) to guarantee their WELL-BEING.
- Identify other predatory species that can affect seriously the colonies in their survival, reproduction and productions (*Vespa velutina*, bee-eater...).
- Basic recognition of the different local honey varieties through a basic organoleptic and melisopalynological analysis.
- Basic knowledge about textures and flavours to be able to detect native varieties of honey.
- Knowledge about the importance of the bee as a pollinator, in biodiversity, the economic and environmental value generated by beekeeping.
- The bee as a bioindicator and in climate change studies.

## ✓ ABOUT BEEKEEPING PATHOLOGY

Goal: *key to adequate and useful action to improve bee health.*

- Recognize the determinative factors in the prevention of hive diseases (population potential, nutritional potential, hygiene, hygienic behaviour, etc.). Design management aimed at reinforcing colonies from those already existing in the apiary.
- Have specific knowledge of Varroosis control. To prove the beekeeper the importance of permanent monitoring of the parasitosis and contribute to their formation at the farm.

- Recognize or suspect in the field the most prevalent diseases, evaluate and select the most appropriate diagnostic tests. (In line with community regulations, an accurate diagnosis of diseases is essential to address their treatment and control).
- Carry out a good anamnesis and obtain a relevant history of the bee colonies (necessary to make a good diagnosis).
- Identify the notifiable diseases and know how to notify them.
- Properly collect the different samples in beekeeping: bees, brood, pollen or honey. Plan its conservation and correct posting to the laboratory.
- Design a basic health program on the farm, taking into account its particularities.
- Knowledge of the veterinary drugs used in beekeeping. Carry out a responsible prescription, in line with the EU regulations on veterinary medicines, respecting the correct dosage and its proper use, after adequately assessing the colony's situation based on professional criteria.
- Communicate appropriately the possible adverse effects and lack of efficacy of the veterinary drugs used.
- Advise on corrective management measures before the appearance of certain diseases which may be difficult to solve only with synthetic treatments.
- Explain the correct management of beekeeping waste, especially veterinary drugs, which can have a negative impact on the environment, keeping the One Health concept always in mind.
- Know the different exploitation records in which the veterinarian intervenes: recording of clinical performance, recording of prescriptions and veterinary drugs, control of waiting periods, etc.
- Highlight the most important aspects of biosecurity in beekeeping farms and advise on:
  - disinfection of the means of production (tools, hives, protective equipment).
  - renewal of the wax, to know the residues that can remain in the wax and the impact they have on the bees.
  - acquisition of new colonies and queens.
  - proper management in the exchange of combs between colonies.
  - drifting bees and hive robbing avoidance practices to reduce the risk of the introduction and spread of pathogens.

✓ **ABOUT BEEKEEPING PRODUCTIONS AND THEIR RELATIONSHIP WITH HUMAN HEALTH**

Goal: *advice and control of food safety and product hygiene.*

- Understand and transmit the importance and promote good beekeeping practices for extraction, storage and marketing of bee products, essential to guarantee Food Safety (another of the very important functions of the veterinarian)
- Design a system that ensures the traceability of the products produced.

✓ **ABOUT THE BASIC LEGISLATION THAT REGULATES BEEKEEPING AND ITS APPLICATION**

Goal: *legal advice.*

- Know and explain the regulations applicable to beekeeping:
  - Management of beekeeping farms, both nationwide and locally in which the beekeeping activity is carried out: necessary to be able to advise on the correct identification of hives, the compulsory distances between apiaries, the regulation of the movements of hives, transhumance, etc.
  - Organic beekeeping.
  - National program for the fight and control of honeybee diseases.
  - How to proceed on mandatory notification of bee diseases.
  - Veterinary medicines.
  - Basic knowledge about the aid received by beekeepers in each country.

✓ **ABOUT KNOWLEDGE ABOUT ECONOMICS IN THE BEEKEEPING COMPANY**

Goal: *tax and economic advice of the company.*

- To know and be able to advise on tax regulations:
  - Costs and expenses in the beekeeping farm.
  - Company viability and business plan.
  - Epigraphs in which they must register.