

GURUKUL EDUCATIONAL AND RESEARCH INSTITUTE

CERTIFICATE IN BEE KEEPING AND HONEY PROCESSING

Subject and Syllabus



2022-23

Syllabus

CERTIFICATE IN BEE KEEPING AND HONEY PROCESSING

DURATION:- 6 MONTHS

792 INTRODUCTION TO APICULTURE - SCOPE, IMPORTANCE

- History of bee keeping: Definition, Bee keeping in worldwide, In India. Traditional bee keeping, Modern beekeeping, Urban or backyard beekeeping.
- Apiculture development in India - institutions involved. Role of Central Honey Bee Research & Training Institute.

793 HONEY BEE MORPHOLOGY, ANATOMY AND LIFE CYCLE

- Basic concepts of morphology of Honey bees - indigenous, exotic
- Honey bee species and identification. Origin, systematic and distribution of honey bees. Types of honey bees, Species of honey bees. Bee identification.
- Social organization in honey bees: Colony life and social organization – Queen, drone, worker. Annual biological cycle of the bee colony.

794 HONEYBEE ENEMIES AND DISEASES

- Bee enemies and diseases: An introduction, Bee enemies – Wax Moth, Ants, Wasps, Microorganisms, Pests. Diagnosis and Identification.

- Mites attacking honey bees: Varroa mites, Mite Biology, Controlling Varroa Mites, Mechanical control, Mite-tolerant stocks, Biopesticides, Chemical (synthetic pesticide) treatments.
- Bacterial, viral, fungal & protozoan diseases: Bacterial disease - American Foulbrood, European Foulbrood, Viral disease - Deformed Wing Virus, Sacbrood Virus, Black Queen Cell Virus, Kashmir Bee Virus, Acute Bee Paralysis Virus; Fungal disease - Chalkbrood, Stonebrood; Protozoan disease - Nosemosis, Nosema cerana

795 HONEY - ITS PROPERTIES AND APPLICATION IN VARIOUS FIELDS

- Honey - its medicinal properties - application in various fields - other valuable by products of honey bees
- Value added honey products. Properties of honey products, Nutrients and composition of honey, Acid content and flavor effects.
- Types of value added honey products.

796 BEE KEEPING: TOOLS AND EQUIPMENT.

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- Basic requirements of Tools for starting bee keeping: Getting Started in Beekeeping - Land and Buildings, Equipment and supplies
- Bee keeping equipment - introduction to types of bee boxes - BIS standard Tools used in apiculture.
- Bee breeding multiplication of colonies - Queen reaching technique.

PRACTICAL

01 To study the morphology of Honeybees and Identification of different species and classes of Honey bees

02 To Study different stages in life cycle of Honey bees.

03 To study the behavior of Honeybees

04 Bee keeping unit - Handling of frames with colonies

05 Introduction of parts of Bee box - ISI 'A' type 'B' type & Tools used in Bee keeping

06 Colony inspection, maintenance - writing up of inspection report

07 Identification of Queen cells, Drone cells & Brood

08 Sugar feeding of colonies in scarcity period

09 Identification of swarming tendency in a colony - Removal of Drone cells

10 Identification of kinds of Queen cells.

11 Methods of Multiplication of Bee Colonies

12 Steps for strengthening of colonies - Requeening technique.

1 Bee flora - Propagation of bee plants - Preparation of floral calendar.

2 Migratory Bee Keeping - measures to be taken while transporting colonies-Mapping of areas for migration.

3 Extraction of Honey using Honey extractor, moisture reduction, packing and storing of Honey.

4 Methods of Extraction of Bees wax, Royal Jelly and Bee venom.

5 Honey testing kit - Physical and chemical methods of analysis.

6 Fermentation and Granulation of Honey.

7 Disease management - Identification of symptoms of Nosema. Sac brood Virus, Thai sac brood virus, American foul brood and European foul brood diseases.

8 Preventive and control measures of the diseases.

9 Application of antibiotics to colonies - Destruction of diseased colonies and disinfection of frames.

10 Management of colonies for different hive products.

11 Natural enemies and predators of Honey Bees - management involved.