Beekeeping is the maintenance of honey bee colonies, commonly in hives, by humans. Bees are accommodated in artificial lives where they live comfortably within easy reach of the bee keeper for examination and extraction of surplus lovely, after keeping of sufficient lovely in the combs for the bees. Honey is a part of bees, which gather sugar containing nectars from flowers. Honey should be processed as soon as possible after removal from the hive. Honey processing is a sticky operation, in which time and patience are required to achieve the best results. Careful protection against contamination by ants and flying insects is needed at all stages of processing. Bee honey is natural, unrefined food consumed as much in fresh or canned state. It is readily assimilated and is more acceptable to the stomach, particularly in the case of ailing persons, than cane sugar. It is an antiseptic and is applied to wounds and burns with beneficial results. Honey collection and its marketing in India are still not fully organised. The main uses of honey are in cooking, baking, as a spread on breads and as an addition to various beverages such as tea and as a sweetener in commercial beverages. Honey is the main ingredient in the alcoholic beverages mead, which is also known as honey wine or honey bear, honey is also used in medicines. A number of small scale industries depend upon bees and bee products. Honey and bees products finds use in several industries which are under; pharmaceuticals, meat packing, bees wax in industries, bee venom, royal jelly, bee nurseries, bee equipments and hives etc. There is considerable demand for the honey and other products. Outside the thousands of homemade recipes in each cultural tradition, honey is largely used on a small scale as well as at an industrial level.

Some of the fundamentals of the book are history of beekeeping in India present, all India co ordinate research project on honey bee research and training, future plan for development, the pattern of beekeeping today, development of beekeeping equipments, beekeeping industry and honeybee species, bee hive products, medicinal properties of honey, bees and agriculture, pesticidal poisoning to honeybees, handling bees, queen rearing and artificial queen, beekeeping and ancillary industries, honey based industries, honey in pharmaceuticals, honey in meat packing, beeswax in industries, bee stings precautions and treatment.

The book contains the steps of bee keeping in proper manner and details of honey processing. This book is an invaluable resource for new entrepreneurs, technocrats and also for established enterprises.

Contents

1. HISTORY OF BEEKEEPING IN INDIA PRESENT
   STATUS AND FUTURE
   HISTORY OF BEEKEEPING IN INDIA
Beekeeping Extension
Khadi and Village Industries Commission
State Khadi and Village Industries Board
Directly Aided Organisation
All India Beekeepers’s™ Association (AIBKA)
BEEKEEPING RESEARCH
Department of Agriculture and Colleges
Apicultural Research Laboratory, Mahableshwar (M.S.)
Central Bee Research and Training Institute (KVIC)
All India Co-ordinated Research Project on Honey Bee Research and Training
Punjab Agricultural University
Other Apicultural Departments
TRAINING IN BEEKEEPING
MARKETING OF BEE-PRODUCTS
PRESENT STATUS
Extension
Research
Training
Marketing
CONSTRAINTS
FUTURE PLAN FOR DEVELOPMENT
The Changing Scenario Under KVIC
Indian Council of Agricultural Research
NATIONAL BEE BOARD
Action Plan
Extension
Research
Training and Education
Marketing
2. WORLD SCENARIO IN BEEKEEPING
THE PATTERN OF BEEKEEPING TODAY
RACE OF HONEYBEES
Dark bees, A. mellifera mellifera L.
Italian bees, A. mellifera Ligustica Spin
Carniolans. A. mellifera carnica (Pollmann)
Caucasian, A. mellifera caucasica Gorb
HONEY PRODUCTION
BEEKEEPING IN EUROPE
GRADING, PACKING AND MARKETING OF HONEY
INJURY TO HONEYBEES BY POISONING
3. BEEKEEPING IN INDIA’s ROLE OF KVIC
KVIC
GROWTH OF BEEKEEPING UNDER KVIC
Organisational Set Up of Beekeeping Under KVIC
Growth of Beekeeping in Different States/Areas
DIRECTORATE OF BEEKEEPING
ORGANISATIONAL SET UP UNDER CBRTI, PUNE
Apiculture
Development of Beekeeping Equipments:
Role of RBRCs/FOS
Introduction of Exotic Bees
Entomology
Bee Pathology
Bee Botany and Melletopalyonology
Bee Pollination
Queen Rearing and Bee Breeding
Rock Bee
Bee Chemistry
Training
Bee Library

4. BEEKEEPING RESEARCH SET-UP,
ACHIEVEMENTS AND FUTURE STRATEGIES
RESEARCH ACHIEVEMENTS AND FUTURE STRATEGIES
Beekeeping Industry and Honeybee Species
BEE FLORA
EQUIPMENT AND MANAGEMENT
GENETICS AND BREEDING
DISEASES & ENEMIES
POLLINATION OF CROPS
HONEYBEE PRODUCTS
PESTICIDAL POISONING

5. MAJOR CONSTRAINTS IN BEEKEEPING
BEEKEEPING WITH APIS CERENA INDICA AND APIS MELLIFERA
THE MAJOR CONSTRAINTS FOR THE DEVELOPMENT OF BEEKEEPING IN INDIA ARE AS FOLLOWS
Using the Correct Species for Beekeeping
Availability of Genetically Superior Queens for Increased Honey Production
Lack of Technical Knowledge for Efficient Management of Colonies for High Honey Yields
Lack of Infrastructure at the Grass Roots and National Level for Beekeeping
Poor Quality Control for the Production of Honey
Emphasis on Production of Honey Instead of other Bee Products
Bees Wax
Pollen
Propolis
Bee Venom
Royal Jelly
Disease Prevention, Control and Analysis
Lack of Sufficient Financial Help from Government and Lending Institutions for the Development of Beekeeping
No Tax or Other Monetary Benefits for Beekeeping
No Control on the Use of Pesticides by Farmers Leading to Death of Bee Colonies in Field Locations
Pricing Structures for Honey
Lack of Finances for Packers or Beekeepers to be Able to Store Honey
Beekeeping Being not Recognized as a Priority Agricultural Activity and Getting Governmental Support
There is No Promotion of Mass Planting of Bee Flora
Apiculture not Being Recognized as a
Specific Field
Lack of Consumer Awareness of Honey and its Products
Beekeeping not Being Considered as an Employment Generation Activity

CONCLUSION

6. BEES AND THEIR ECONOMIC IMPORTANCE

WILD BEES
SPECIES OF HONEYBEES

7. MORPHOLOGY, ANATOMY, COLONY ORGANIZATION AND LIFE CYCLE

MORPHOLOGY
ANATOMY
COLONY ORGANIZATION
DEVELOPMENT
POINTS OF CASTE DISTINCTION

8. BEEKEEPING EQUIPMENTS

LANGSTROTH TEN-FRAME HIVE
NEWTON HIVE

OTHER BEEKEEPING EQUIPMENTS
EQUIPMENTS FOR HANDLING BEES

9. SEASONAL ACTIVITIES AND SOCIAL BEHAVIOUR OF HONEY BEES

SOCIAL BEHAVIOUR OF HONEYBEES
SEQUENCE OF ACTIVITIES IN THE LIFE OF BEES
DIVISION OF LABOUR

COMMUNICATION AND MEMORY OF HONEYBEES

Dance Language
CHEMICAL COMMUNICATION

PHEROMONES
WORKER PRODUCED ODOURS
QUEEN - PRODUCED ODOURS

Inhibition of Queen Rearing and Swarming
Prevention of Worker Ovary Development
Attraction of Drones for Mating
Attraction of Swarms and their Stabilization
Stimulation of Nasonov Pheromone Release and Worker Foraging
 QUEEN ATTRACTIVENESS AND RECOGNITION
Other Pheromones

CONTROL OF REPRODUCTION IN HONEYBEE COLONIES
Foraging Activities
Nectar
Pollen
Water
Propolis
Maintenance of Nest/Hive Temperature

FORAGING RANGE
WORKING HABITS OF FIELD BEES
SPEED OF FLIGHT
COLONY DEFENCE ACTIVITIES

10. FOOD OF THE HONEYBEES, BEE FLORA
AND HONEY FLOW PERIODS

NIIR Project Consultancy Services (NPCS) 4/10
FOOD OF THE HONEYBEES
BEE FLORA
NATURAL AND ORNAMENTAL FLOWERS
PROPAGATION OF BEE PLANTS
11. SEASONAL MANAGEMENT OF HONEYBEE COLONIES
WINTER MANAGEMENT
Adequate Population of Young Bees
Stores of Food in a Colony
Protection from the Humidity and Cold
(a) Reduced Entrance and Adequate Ventilation
(b) Winter Packing
SPRING MANAGEMENT
SWARMING
CATCHING THE SWARM
PREVENTION OF SWARMING
MANAGEMENT DURING HONEY FLOW
HONEY EXTRACTION
SUMMER MANAGEMENT
MONSOON MANAGEMENT
POST-MONSOON MANAGEMENT
CONTROL OVER DESERTION OF BEE COLONIES
12. MIGRATORY BEEKEEPING
TRANSPORTATION OF BEE HIVES
13. DISEASES OF BEES AND THEIR ENEMIES
VIRAL DISEASES
Thai Sac Brood Virus
Apis Iridescent Virus
Kashmir Bee Virus
Bee Viruses not Found in India
BACTERIAL DISEASES
American Foul Brood
European Foul Brood
PROTOZOAN DISEASE
Nosema Apis
FUNGAL DISEASES
MITES
Acarapis Woodi
Varroa Jacobsoni
Tropilaelaps Clareae
INSECT ENEMIES OF BEES
Wax Moths
Greater Wax Moth
Lesser Wax Moth
Predatory Wasps
Black Ants
BIRDS AND OTHER ENEMIES
14. BEE HIVE PRODUCTS
TYPES OF HONEY
CHEMICAL COMPOSITION
PHYSICAL PROPERTIES OF HONEY
HYGROSCOPICITY
VIScosity
SPECIFIC GRAVITY AND REFRACTIVE INDEX
AROMA AND COLOUR
HONEY, AN ENERGY FOOD
Nutritive Value of Honey
Honey - A Tonic
Consumption of Honey
Anti-bacterial Effects
MEDICINAL PROPERTIES OF HONEY
Honey as Medicine
HONEY IN INFANT FEEDING
HONEY AND DIABETES
Diabetes
Composition of Honey
HONEY IN HOME PREPARATIONS
Honey Spread
Honey Water
Comb Honey
Honey in Cooking and Baking
Honey in the Kitchen Angel Biscuits
Honey Butter
Apple-Oats-Musli
Orange-Apple-Musli
Carrot Salad with Honey
Comb Lemon Squash
Honey Mango Squash
Honey Jam
Honey Candy
Honey and Egg
Honey Ice-cream
Honey Chocolate
Honey Chikki
Honey Jelly
Honey Soap
OTHER USES OF HONEY
GRANULATION
MOISTURE CONTENT AND FERMENTATION
Honey Processing
CONSTRUCTIONAL DETAILS OF THE HONEY PROCESSING UNIT
WORKING OF THE UNIT
TIPS TO USE HONEY
TESTING OF HONEY FOR PURITY
Pollen
COMPOSITION
USES
BEES WAX
CHEMICAL COMPOSITION
PHYSICO-CHEMICAL PROPERTIES
USES
EXTRACTION OF WAX
Extraction Over Boiling Water
Chemical Bleaching
By Wax Presses
15. BEES AND AGRICULTURE
CROSS-POLLINATION OR OUTCROSSING
BIOTIC POLLINATION
EFFICIENCY OF POLLINATING BEES
ORCHARD MANAGEMENT
PLACEMENT OF HIVES IN ORCHARDS
LOCATION OF THE HIVES
ROLE OF BEES IN SUSTAINABLE AGRICULTURE
AND ENVIRONMENT
BREEDING BEES FOR POLLINATION OF SPECIFIC CROPS
POLLINATION REQUIREMENTS OF CROPS
EFFECT OF INSECT POLLINATION ON
ENVIRONMENT
MANAGEMENT DURING POLLINATION
16. NON-APIS BEE POLLINATORS
NESTING HABITS
BEE NESTING MATERIALS
TRAP-NESTING SOLITARY BEES IN THE
HUMID AND WET TROPICS
Material Preparation
Placement of Artificial Domiciles for Bee Culture
Bees Commonly Using Trap Nests
Nest Parasites and Pests
Recommendations for Future Work
FORAGING CYCLE IN RELATION TO
SEASONALITY OF THE HOST PLANTS
Role of Non-Apis Bee Pollinators in Seed/Fruit
Production
PRESENT STATUS OF MANAGEMENT OF
NON-APIS BEE POLLINATORS
Conclusions and Future Strategies for Management
and Conservation of Wild Bee Pollinators
17. PESTICIDAL POISONING TO HONEYBEES
HOW ARE BEES EXPOSED TO
PESTICIDAL HAZARDS
SYMPTOMS AND EFFECTS OF PESTICIDAL
POISONING
PESTICIDES AND THEIR RELATIVE
TOXICITY TO BEES
PESTICIDES MOST TOXIC TO BEES
PESTICIDES VERY TOXIC TO BEES
PESTICIDES LESS TOXIC TO BEES
PESTICIDES LEAST TOXIC TO BEES
REDUCE PESTICIDAL POISONING TO BEES
CARE OF THE POISONED COLONIES
PLANT POISONING TO BEES
18. BEE PASTURAGE
NECTAR-SUGAR CONCENTRATION
NECTAR COMPOSITION
FACTORS AFFECTING NECTAR SECRETION
BEE FLORA OF INDIA
Avenue, Amenity and Timber Tree
Fruits
Cultivated and Wild Bushes, Shrubs and Field Crops
Vegetables
Ornamentals
19. QUEEN REARING AND ARTIFICIAL QUEEN
BEE INSEMINATION
SELECTION OF MOTHER STOCK
BIOLOGICAL BASIS OF QUEEN REARING
METHODS OF QUEEN REARING
ARTIFICIAL MATING
INSTINCT OF REPRODUCTION AND RELATED MANAGEMENT
CONTROL OF REPRODUCTION
QUEEN AND ITS MANAGEMENT
LAYING WORKERS
REPRODUCTION OF SPECIES “SWARMING, PREVENTION AND CONTROL
MAKING COLONY INCREASE
20. BEEKEEPING AND ANCILLARY INDUSTRIES
BEEKEEPING AND ANCILLARY INDUSTRIES
Honey Based Industries
Honey in Pharmaceuticals
Honey in Meat Packing
Beeswax in Industries
Bee Venom
Royal Jelly
Bee Nurseries
Bee Equipments and Hives
21. HANDLING BEES
INTRODUCTION
BEHAVIOUR OF BEES
WHEN TO MANIPULATE BEES
HOW LONG TO KEEP A HIVE OPEN
DRESS AND PERSONAL HYGIENE
MANIPULATION TECHNIQUES
MANIPULATING DIFFICULT COLONIES
BEE STINGS PRECAUTIONS AND TREATMENT
PRECAUTIONS
IMMEDIATE CARE
BEE VENOM AND ITS MEDICINAL VALUE
STINGING BEES IN WAR FARE
22. MARKETING OF BEE PRODUCTS
23. HONEYBEES - ENVIRONMENTAL QUALITY INDICATORS
24. HONEY ANALYSIS
DESCRIPTION
METHODS OF ANALYSIS AND SAMPLING
MISCELLANEOUS
METHODS OF ANALYSIS
Qualitative Fieche’s Test
PROCEDURE
Specific Gravity
PROCEDURE
Water Moisture Content (%)
Total Reducing Sugars
PROCEDURE
Non Reducing Sugars (sucrose)
25. PROMOTION OF BEEKEEPING IN KERALA
26. PROMOTION OF BEEKEEPING IN PUNJAB
HISTORICAL ACCOUNT OF BEEKEEPING
SUPERIORITY OF A. MELLIFERA OVER
INDIGENOUS HONEYBEE
CLIMATIC SUITABILITY
MAJOR BEE FLORA AND THEIR VALUES
TRAINING IN BEE MANAGEMENT
DEVELOPMENT OF BEEKEEPING IN PUNJAB
SPREAD OF A. MELLIFERA IN OTHER STATES
SUBSIDIARY INDUSTRIES AND RURAL ECONOMY
FUTURE PROJECTIONS
MARKETING OF HONEY
OBJECTIVES OF PUNJAB STATE BEEKEEPERS ASSOCIATION
CASE HISTORY OF IMPORTANT BEEKEEPERS
27. BEEKEEPING IN HIMACHAL PRADESH
BEEKEEPING WITH A. MELLIFERA
MIGRATORY BEEKEEPING
DISEASES AND ENEMIES OF A. MELLIFERA
PROBLEMS FACED BY BEEKEEPERS OF
HIMACHAL PRADESH
HONEY: MEDICINE FOR HEALTH, FRESHNESS & BEAUTY
28. CONCLUSIONS AND FUTURE STRATEGIES
29. BEE FORAGE IN INDIA
30. PLANT & MACHINERY PHOTOGRAPHS
31. ADDRESSES OF PLANT & MACHINERY SUPPLIERS

About NIIR

NIIR PROJECT CONSULTANCY SERVICES (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.


NPCS also publishes various process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.