



To,
The Principal,
M.G.V.C. College,
Muddebihal

Date: 28-01-2019

Sub: - Regarding request for permission to arrange Field work

Sir,

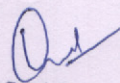
Our students studying Zoology as one of the Subjects for their B.Sc Degree Course are visit to the Field of Apiculture on 31.01.2019. They are guided by staff members who are accompanying them.

I hereby earnestly request you to grant your kind permission to make the field visit successful.

Your kind co-operation and guidance will be quite helpful to the students in acquiring the academic excellence.

I strongly believe that you will oblige.

Thanking you,


Head of the
Department of Zoology
M.G.V.C. Arts, Com. & Science College
MUDDEBIHAL-586212 Dist. Vijayanagara



S. G. V. C. Vidya Prasarak Trust's,

**Matoshri Gangamma Veerappa Chiniwar
Arts, Commerce & Science College,**

MUDDEBIHAL-586212. Dist. Vijayapur (Karnataka)

(Accredited with CGPA of 2.58 on seven point scale at 'B+' Grade)

2018-19
☎ : 08356220329

FAX : 08356220329

* email : princmgvc@gmail.com * www.mgvcmbi.in *

Ref. No. :

Date :

Permission letter

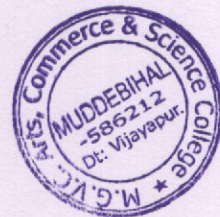
Dear Colleague,

Iam pleased to know through your request letter that you are going to visit Apiculture field accompanied by our students of studying Zoology as one of the subjects in their BSc degree course.

You are hereby granted permission for the same. I wish you entire field visit programme will be quite safe, happy and successful.

Date: 29-01-2019


PRINCIPAL,
S. G. V. C. Arts, Com. & Science College
MUDDEBIHAL - 586212.



MGVC.Arts, Commerce and Science College Muddebihal

Report on Field Visit

To

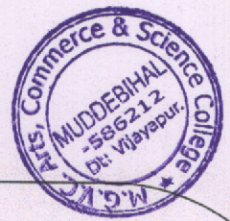
**Apiculture Field,Bhagamandal
Dept of Horticulture, Govt. of Karnataka
Tq:Madikeri, Dt: Kodagu**

By

**BSc Final year Students
Submitted to**

Department of Zoology

Date: 31-01-2019



Visit to Apiculture Field

Introduction: Bee Keeping has been practiced in India since time immemorial. The earliest references date back to Vedas and Ramayana. But Scientific Bee Keeping with the help of simple machine and untouched by hand is a comparatively new venture. The Western method of frame hive was first introduced in Bengal in 1882 and in Punjab in 1883-84. In 1962 the commission under its directorate of Bee keeping established the Central Bee Research Training Institute at Pune.

In Karnataka Bee Keeping is practiced in Bhagamandala of Madikeri. Here the Department of Horticulture (Govt of Karnataka) is maintaining culture and the training centre for Certificate course of Bee Keeping. Here the culture of Indian Bees *Apis indica* is in practice.

Castes Of Honey Bee

Honey Bee is a social insect. The nest of the honey Bee is called as the Bee hive. A hive in summer consist of 32 to 50 thousand individuals. A colony is termed weak or strong according to the number of worker bees it possesses. There are three types of individuals in a colony namely the Queen, Worker and Drone. All these three castes depend on each other for their existence.

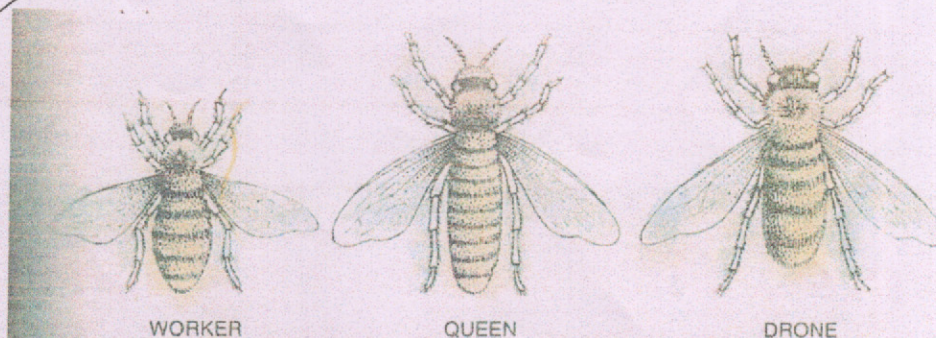
Queen: Queen is a fertile female. The presence of Queen in a colony is must. The size of the body of Queen is much larger than other castes of bees of the colony. The queen is responsible for laying eggs for a colony. She lays about 1000 to 1500 eggs everyday and lives a life of two-three years.



Worker: It is a diploid sterile female. The size of a worker is the smallest among the castes but they constitute the majority of the bees in a colony. Their function is to collect honey, to look after young ones, to clean the comb, to defend hive and to maintain the temperature of the hive.

Workers are provided by a sting at the tip of the abdomen which is modified ovipositor. A large poison storage sac is connected with the base of the sting. Two acidic and one alkaline gland mix their secretion to form poison which is injected by the operation of muscles to other animals. During the withdrawal from the prey's body, the sting along with other poison apparatus are torn off, resulting in the death of that particular bee. Workers are females but are incapable of producing eggs. The life span of a worker bee is 4 to 5 months.

Drone: It is haploid, fertile male. The males are larger than workers. They are unable to gather food. They are stingless and their sole function is to fertilize the eggs. The number of drones in a colony varies from 200-300. They develop from unfertilized eggs.



WORKER

QUEEN

DRONE

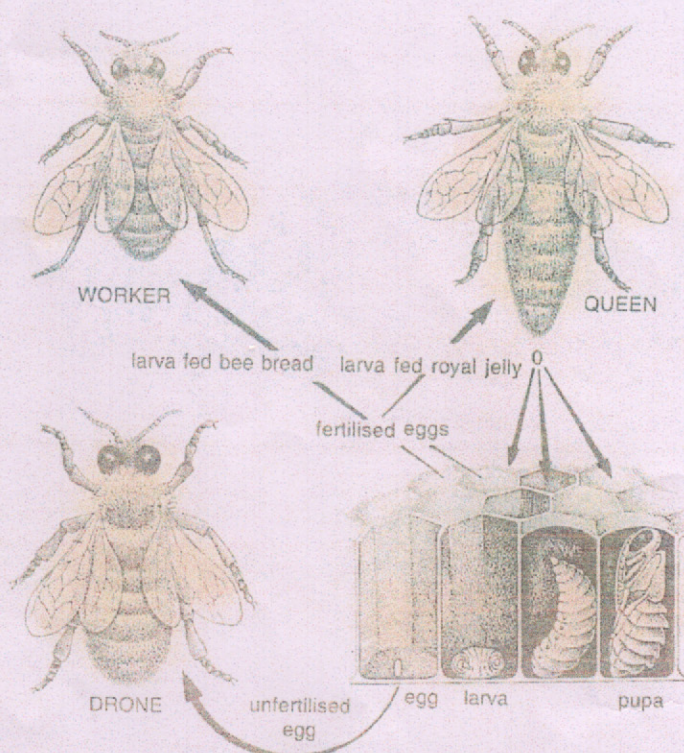
Honey Bee Castes

Life Cycle Of Honey Bee

To become an ideal apiculturist it is necessary to know the habit and life history of bees. Each hive contains one queen, several drones and innumerable workers. A queen can lay both fertilized and unfertilized eggs. Eggs are small pearly white and spindle shaped. Unfertilized eggs are laid in which spacious drone cells where they develop into drones. Larvae hatch out from the eggs after about 3 days of egg laying. Fertilized eggs develop into females.

During first 2-3 days all larvae are fed on a special food the "Royal Jelly" secreted by the Pharyngeal glands of the young workers. After that Coarser food, the "Bee Bread", which is a mixture of honey and pollen grain is given.

However, the queen forming larvae are fed on Royal Jelly for full larval life and they are taken for further development into a special chamber called the Queen's chamber. The larvae moults several times and pupates on the seventh day. Now the worker bees cover the cell with a thin layer of wax. Finally the adult comes out by cutting the wall.



Life Cycle of Honey Bee

Structure of Hive

The highest degree of nest construction among insects is found in bees. The hive and comb of the bees are formed mainly by workers. A comb is the vertical sheet of wax, composed of a double layer of hexagonal cells projecting in both directions from central wax-sheet.

The cells of the comb are of various types. The "Storage Cell" which contains honey and pollen are generally built on the margin and at the top of the comb. The "Brood Cells" which contains the young stages are built in the centre and the lower part of the comb. Brood chamber is further divided into worker chamber, Drone chamber and the Queen chamber. The adults have no chambers.



Frame Hive of Honey Bee

Starting a Bee Hive

- A beginner should learn in detail about the habit and behavior of the bees.
- To procure the hive and other tools connected with bee keeping. The Khadi and Village industries commission are providing all sorts of assistance. Including monetary grant.
- Hive should be placed in a locality rich in vegetation especially the flowering plant.
- The hive should face east. It should receive sunlight during morning.
- Water should be available near by and on open space in front of hive entrance is necessary.

Spring is the best season for starting bee keeping.

Bee Hive and other tools connected with Bee-Keeping.

1. **Bee-Hive:-** The modern bee hive is based on certain principles and is called movable hive frame hive, made up of wooden box.
2. **Queen Excluder:-** This consists of a frame fitted with metallic wire net assembled together. The holes in the net do not cause any inconvenience to the workers to pass through it.
3. **Comb Foundation:-** It is a sheet of bee wax on both sides of which exact shape of different cells of the comb is made in advance.
4. **Bee-Gloves:-** They are leather gloves used by beekeepers to protect their hands from the sting of the bee.
5. **Bee Veil:-** A bee veil is a covering to protect the keeper's face from the sting of the bees. It is made up of fine net through which bee cannot pass.
6. **Hive tool:-** It is a flat, narrow and long piece of iron which help in scraping the dirty materials deposited by the bees.
7. **Bee Brush:-** It is a large brush often employed to brush off bees from honey combs particularly at the time of honey extraction.
8. **Queen Introducing Cage:-** It is a pipe made up of wire nets through which the queen can not pass.
9. **Feeder:-** During drought and lack of natural food bees are fed with artificial food. Sugar syrup taken in a basin is placed over the frames of the brood chamber.
10. **Honey extractor:-** This instrument is used for extracting honey from the frames without any destruction to the comb.



Wooden Box of Hive



Hive Box

Swarming

It is a natural phenomenon whereby mass movement of bees from one place to another place. All these bees comes out of the hive, they get divided into two or three colonies and move into different directions. Queen and Drones also follow them. During this time bees should be transferred to a different hive which give them a chance for survival.

Bee Dance:- The honey bee has surpassed all of them by their peculiar movement called as "Bee Dance". Bee dance not only a device which provide a clue to the feeding place, but it also communicates the exact location, the strength and the distance of the feeding place from hive. There are two different types of bee dance.

1. Round Dance
2. Tail-Wagging Dance.

Diseases:- One of the most dreadful contagious disease is brood foul. It is fungal disease. It is cured by washing the hive by a mixture of soft water, Dairy salt, Bicarbonate of soda, Pure Salicylic acid, Alcohol mixed with certain amount of honey syrup. Other diseases are Nosema disease and amoeba disease caused by protozoan parasite.

Usefulness of Honey Bee

The most important part played by bees is the production of honey, which is a nourishment of high food value. The collection of nectar is very hard and strenuous work, as for collecting 500gms of nectar a bee has to make about 10000 flights. Out of this 500 gms about half gets evaporated.

Bee wax is of high melting point secreted by wax glands of worker bees. This is used by human beings for several purposes, like manufacturing of cosmetics, cold creams, shaving creams, polishes, candles, ointments, lipsticks etc.

Bees are good pollinators and responsible for cross pollination in several variety of plants.



Bee Wax

Medical value of Honey

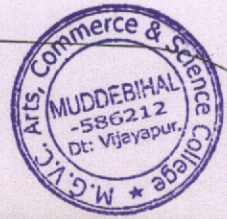
Honey is supposed to be blood purifier, a cure against cough and cold, sore throat, ulcers of the tongue, ulcer of stomach and intestine etc. It is prescribed for heart and diabetic patients and is useful for kidney and lung disorders.

Conclusion

Apiculture has got more importance due to the production of honey and also it is helpful to farmers, where honey bees increase pollination in flowers such as sunflower etc. It also provides employment in rural areas leading to economic self reliance which in turn rises the standard of living of people in villages.



Cells of Hive with Bees



Observation of Hive



Deputy Director of Horticulture Department Addressing the Students



Bee Hive



Staff and Students with Horticulture Department Staff

[Signature]
Co-ordinator,

Internal Quality Assurance Cell
M.G.V.C. Arts, Commerce & Science College
MUDDEBIHAL-586212. Dist: Vijayapur.

[Signature]
PRINCIPAL,

M.G.V.C. Arts, Com. & Science College
MUDDEBIHAL-586212.

M.G.V.C.ARTS, COMMERCE AND SCIENCE COLLEGE
MUDDEBIHAL

DIST: VIJAYAPUR

DEPARTMENT OF ZOOLOGY

List of the students and staff members going to field visit - 2018-2019



Sl.No		Name	Signature
1.	S1628602	Abhishek Jadhav	Abhishek Jadhav
2.	S1628813	Prabhu Sajjan	Prabhu Sajjan
3.	S1624601	Aafreeda Shivanagi	Aafreeda Shivanagi
4.	S1624602	Aasiyabanu M Bagaban	Aasiyabanu M Bagaban
5.	S1624603	Ahamad M Salawadagi	Ahamad M Salawadagi
6.	S1624610	Amreen Mulimani	Amreen Mulimani
7.	S1624620	Ashwini Chandrashekhar Jalawadi	Ashwini Chandrashekhar Jalawadi
8.	S1624622	Avinash R Chalageri	Avinash R Chalageri
9.	S1624626	Bhagyalaxmi Mallappa Kallappagol	Bhagyalaxmi Mallappa Kallappagol
10.	S1624628	Bhargavi Nadagouda	Bhargavi Nadagouda
11.	S1624634	Chitra P Biradar	Chitra P Biradar
12.	S1624639	Deepa Rathod	Deepa Rathod
13.	S1624642	Farooqabul U Kuntoji	Farooqabul U Kuntoji
14.	S1624645	Gangamma Chalawadi	Gangamma Chalawadi
15.	S1624647	Gulfalm Shivanagi	Gulfalm Shivanagi
16.	S1624655	Jyoti Policepatil	Jyoti Policepatil
17.	S1624658	Kiran Badiger	Kiran Badiger
18.	S1624665	Madivalappagoud Nadagoud	Madivalappagoud Nadagoud
19.	S1624666	Mahalaxmi Hugar	Mahalaxmi Hugar
20.	S1624672	Mahmadmustaf Hebbal	Mahmadmustaf Hebbal
21.	S1624673	Mahamasuhel dharawadakar	Mahamasuhel dharawadakar
22.	S1624674	Mallamma Biradar	Mallamma Biradar
23.	S1624677	Mallikarjun Hosamani	Mallikarjun Hosamani
24.	S1624678	Mallikarjun Jolad	Mallikarjun Jolad
25.	S1624688	Mubina M Kolkar	Mubina M Kolkar

Staff members: 1.Prof.R.G.Vastrad

2.Prof.K.G.Hiremath

Prof. R.G. Vastrad
Prof. K.G. Hiremath

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Ref. No. :

Date :

MGVC.Arts, Commerce and Science College Muddebihal

**A Report on
Visit to the Bee Keeping Field**

As per the requirement of syllabus, the BSc final year students of Zoology visited to Bee Keeping training center, Horticulture Department, Government of Karnataka at Bhagamandal, Tq:Madikeri, Dist: Kodagu on 31-01-2019, headed by Prof.R.G.Vastrad and Prof.K.G.Hiremath. In the field they were well maintained Honey bee species Apis indica. 25 students and 2 staff members were visited the field.



hec
PRINCIPAL,

M.G.V.C. Arts, Com. & Science College
MUDDEBIHAL-586212,