

BEE RESEARCH STATIONS FOR INDIA

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It is customary to describe the fabulous prosperity of a country as the land flowing with milk and honey, which are universally recognised as the two essential dietetic ingredients of every well-fed people. The extent of their production and consumption may be taken as a measure of a nation's well-being. History records that India was once such a happy country; to-day the conditions as regards the supply of milk and honey are desperate and it is only the few rich and wealthy that can afford these luxuries. To the average American, the Scandinavian and the pre-war European, honey is an easily available article of diet. During World War II. Americans were encouraged to produce and consume more and more of honey in place of sugar which was strictly rationed; the wax which was a bye-product of the expanding industry found extensive employment for securing the waterproofness and corrosion resistance of certain parts of ships, aeroplanes and other implements of war. Statistical data have shown that longevity of men is largely determined by the amount of honey consumed by them. It is a matter of common experience that the queen can be reared from a worker's larva by feeding it with diluted honey (royal Jelly).

Bees play yet another useful rôle as pollinators. Apiaries in many parts of U.S.A. are, in fact, carried from orchard to orchard during the blossoming period with the active co-operation of the growers, who are often willing to defray the expenses of transportation. Recent work in Russia indicates that honey produced from bees fed on various drugs have been found to possess specific therapeutic properties.

What are then the basic requirements for building up a prosperous bee industry? How is it possible to produce more honey per hive? These are some of the natural queries that arise in our minds. Honey yields are principally influenced by the population of a colony. For instance, hives containing population at its highest yield not only more honey per hive but also per bee than hives with small population. In other words, colony population is a very important factor. The colony population on the other hand depends on the number

of brood reared or eggs laid. The number of broods are governed by the quality of the queen. A good queen lays about 1,500 eggs per day. The number of eggs laid by a queen increases with increase of colony population, comb space and abundance of supply of pollen and honey. It has been found by practice that more honey can be produced only in large colony as majority of the bees are free for field work; whereas in a small colony most of the bees are engaged in rearing of the broods. In addition to all these factors, there should be also an abundance of natural resources in the form of nectar-bearing plants.

In India the methods for honey production at the moment are disorganised, unscientific, crude and uncertain and there is practically no large-scale industry for the production of honey. Most of the honey in the Indian market is derived from the wild beehives by certain professional tribes whose traditional and intimate knowledge of the bee and its habitat may be worth acquiring. These sources are naturally fortuitous and undependable. Methods of extraction and preservation are crude and unscientific while the trade is in the hands of unscrupulous profiteers. Due to its high price, adulteration with sugar syrup and molasses is frequent.

There are, however, great possibilities of organizing the production of honey on scientific lines with a view to not only secure steady supplies, but also to increase the production of honey. Our blossoming forests and agricultural and horticultural fields offer a rich environment for the culture of honey bees. The seasonal conditions in India are more propitious than what they obtain in other parts of the world.

Apiaries require a good location. As a rule they should be situated in well-drained areas of countryside within a range of nectar-bearing vegetation. During most of the day under all weather conditions they should receive ample sunlight and at the same time they should be screened against winds by groves or trees, which may also help the bees to fly higher and thus reduce the danger or nuisance to the farmers working on the neighbouring

fields. A natural or artificial supply of water is very necessary to be located near the apiaries for the bees. Thus an apiary, set on the bank of a river in the vicinity of blossoming orchards or agricultural crops partially surrounded by trees facing the sun during morning time, can be regarded to occupy an ideal location.

Bearing these fundamentals of practical bee-keeping in mind one can easily move ahead in establishing bee research stations in order to further the research work and disseminate this knowledge among the masses. The most spectacular advances in the science and technology of honey production have been made recently in U.S.A. A deep and earnest study of the methods of research by which American scientists improved their industry and stepped up its production, will be of inestimable value in organising our methods of honey production in India. Some of the fundamental discoveries which led to the production of higher yields of honey and to the maintenance of the health and vigour of the bees are listed :

1. Species of blossoms in relation to the quality, flavour and nutritive value of honey ;
2. Ecological and other environmental factors in relation to honey production ;
3. Study of the nutritional requirements of the queen bee and the workers.
4. Two queen or multiple queen colony system ;
5. Artificial insemination apparatus ;
6. Disease control.

So far no systematic work has been carried out on Indian bees. The production of honey could be substantially stepped up by organizing research and the following represents a scheme through which a prosperous industry may be built upon a sound scientific foundation.

1. Study of the races of the bees of India—

(a) Taxonomic ; (b) Physiological.

2. Improvements in the yield of honey from a few of the promising races.

3. Domestication of wild and promising races.

4. Breeding new races.

5. Artificial insemination.

6. Multiple queen system of bee keeping.

7. Studies in the nutrition of the queen and the workers.

8. Determination of the honey producing potential of certain ecological make-ups in agricultural and forest areas.

In our subcontinent which has such a great variety of floristic compositions and climates there should be at least five bee research stations. One of them should be centrally located and should be designated as the Central Bee Station and four others in four different places under the name Northern, Southern, Eastern and Western bee regional stations. The Central Bee Station ought to be equipped with all the modern equipment, a good library and with adequate staff consisting of a Director, a Biochemist, an Insect Physiologist, a Botanist (Systematist), a Plant Pathologist, an Entomologist, two research Assistant Entomologists, two Insectiary Assistants, two laboratory technicians, four fieldmen, one stenotypist and one librarian. Each of the four regional stations should include a staff of a Apiculturist, a Biochemist, a Botanist, an Entomologist, two research Assistant Entomologists, an Insectiary Assistant, two laboratory technicians, two fieldmen, a stenotypist and a librarian.

Every year, each of the four bee regional stations should hold a demonstration to popularise the means and methods of this industry among the masses. Adequate information and help ought to be given to those who feel interested and may like to raise apiaries in their gardens, fields, or orchards.

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