



BEEKEEPING DEVELOPMENT PROGRAMMES IN SRI LANKA

by B. A. Baptist
(Department of Agriculture, Sri Lanka)

(From "*Apiculture in Tropical Climates*", IBRA, London
1976, Pages 135-142)

BEEKEEPING DEVELOPMENT PROGRAMMES IN SRI LANKA

by B. A. BAPTIST

(Department of Agriculture, Sri Lanka)

(From "Apiculture in Tropical Climates", IBRA, London
1976, Pages 135-142)

The life of honeybees is profoundly affected by climate and flora. The physical and biological factors of the local environment are therefore of great significance in any development programme for honey production. The local human interests and efforts involved, and their possible potential, are also of great importance.

Beekeeping Practice

Honey Hunting

Obtaining honey from wild bees living under natural conditions was a regular practice of the primitive hunting tribes (Veddas) of the country who depended on forest and jungle produce for their food. The bees involved in these honey-hunting raids were the Giant or Rock bee (*Apis dorsata*) and the Asiatic honeybee (*Apis cerana*); both bees accumulate appreciable quantities of honey during the dry seasons of the year, chiefly in the months of June, July and August. In the process of obtaining this honey, the flying bees were driven off by smoking. The combs were then cut down and the honey squeezed out and collected, while the parts containing brood and pollen were consumed on the spot.

Primitive Beekeeping

With the practice of primitive migratory agriculture of the chena type, in which forest or jungle is cut down and burnt and the land used for raising food crops for 1 or 2 years before passing on to fresh pastures, a primitive type of beekeeping was practised. Clay pots were smeared with honey and wax to attract passing swarms of bees. Swarms of *Apis cerana* readily took to these pots. The honey was eventually obtained in the usual way by breaking off the combs, and this entailed much destruction of bee life. Most of this honey, with collections obtained also from *Apis dorsata* farther inside the forest, was normally brought to the village bazaar or town for sale. This is still continued by the rural peasantry who live in close proximity to forest land.

Hobbyist Beekeeping

The next step in beekeeping practice was taken by a few hobbyist beekeepers who generally used the western and Indian types of hives for keeping bees, with some variations in size of frame and capacity of hive. Some of them went so far as to import *A. mellifera*, chiefly from Australia. No notable success, however, appears to have crowned these efforts.

State-aided Beekeeping

With the setting up of a Department of Agriculture to deal largely with food production and peasant rehabilitation, beekeeping was given some official recognition and taken up

in the training programme of the local field staff. The training was, however, not intensive, nor was beekeeping taken seriously as a specific item of rural agriculture; the teachers were content merely to advise on the basis of the South Indian practices (9). The success in actual honey production was, however, spurious and isolated, and official assistance soon lapsed into the realm of propaganda.

In the late forties, however, the British Council sponsored a visit by Dr. C.G. Butler from Rothamsted in the UK, with a view to ascertaining the potential of beekeeping in the country with regard to commercial honey production (2). This was followed by providing a training of one year in beekeeping for an officer of the State Department of Agriculture.

Among the more important recommendations made by Butler (2) was the local production of a representative, standard hive at minimum cost, for which he prepared a prototype, and a simple method of management easily adopted by the rural peasantry. But he also recommended the use of comb foundation and centrifugal honey extraction to improve the very low yields available. These were to be initially made available by the State as a special subsidy. His major recommendation was that adequate provision should be made for the selection and breeding of productive strains of indigenous local bees, as obtainable from the best localities in jungle and forest areas. This he recommended to be done by a qualified scientific officer aided by ancillary staff.

Butler's recommendations were not followed up, however, except in connection with the production of hives, and financial support was given only for the construction and distribution of these, free to peasant farmers, leaving them to carry on from that stage with local talent and knowledge. Subsequently some efforts have been made to improve the position with special training and demonstration, but on such a restricted scale as to make no appreciable impression.

Honey Production Efforts

Honey Collection from Natural Sites

The primitive plundering of honey from wild bee colonies still goes on. This is for the most part confined to *Apis dorsata*, and is not in fact so unreasonable as it may appear at first sight. There are two major reasons for this.

First, *Apis dorsata* is characteristically a migratory bee, and little or nothing can be done in practice to change this behavioural feature. Associated with this habit, it will not allow itself to be confined to a closed hive that can be easily manipulated and, so far, attempts made to this end have not been successful.

The second reason is that *Apis dorsata* operates chiefly deep in forest areas, far away from human settlement, and generally in situations not easily accessible. So hunting raids are carried out to collect honey. If properly timed, as they are by those who adopt this practice, quite appreciable quantities of honey can be collected; though entailing some destruction of bee life, this is relatively so small as to make no difference to the survival of the species.

Associated with the plundering of honey from colonies of *Apis dorsata*, is also the obtaining of the wax combs of these bees. Such collection is or can be augmented by the collection of combs abandoned when the bees migrate from one area to another. Unlike the collection of forest honey, the collection of wax in Sri Lanka from this source has not been exploited and there is some scope for development.

During the honey flow in the dry zone forest area, honey hunters do not neglect or ignore colonies of *Apis cerana*, which are as numerous in these areas as *Apis dorsata*, though somewhat less easy to detect unless searched for. This again is a task not too difficult for those traditionally engaged in honey hunting, and consequently the quantity of honey plundered from *Apis cerana* colonies can also be appreciable. An illustration of the scope of honey hunting is afforded by the fact that a wholesale dealer in wild honey in a single dry zone area of the North-Central Province is able to market as much as 2000 kg of honey in a season.

Honey Production from Hive Bees

The use of *Apis cerana* in domestic hives in Sri Lanka can be traced back to the early part of the 1920's when great interest was shown in plantation agriculture and horticulture. The earliest attempts were based entirely on the knowledge of *Apis mellifera* and the equipment and procedures used for this bee in the West. It is difficult to trace the results of these efforts; the general impression that can be gathered, by correspondence and publications available, is one of little success, with the benefit not going much further than the circle of friends round the beekeeper himself. In all these lone efforts, there have also been occasional attempts to get some State support in order to subsidize and popularize beekeeping activity, but again with little success. Consequently beekeeping has continued to remain purely in the province of the hobbyist and nature lover.

At a later stage, when beekeeping with *Apis cerana* was guided chiefly by the experience in South India, and the nature of the hives used and practices adopted were not very different, the results on the whole were disappointing. The more successful beekeepers were those who were able to place their colonies in areas accessible to established forest or to transfer their colonies to different areas according to the honey flows prevailing. Some of these beekeepers were able to obtain something like 12 kg honey from the best colonies (3,5), a quantity which could be considered appreciable only if the time spent in management and the capital required were very small. However, if the average yield of all the colonies kept by a beekeeper over a range of some years was considered, the average was reduced to not much more than 4 kg honey per colony.

Factors Affecting Production

One of the main reasons for this poor average appeared to be that in many areas of the country there were no very specific or prolonged seasons of proper flowering for an adequate honey flow. This tended to favour the development of strains which maintained a small colony size, and perhaps an excessive swarming habit. In consequence even short honey flows could not be fully exploited.

Heavy continuous rain is not infrequently experienced during the two monsoonal periods, and sometimes lasts for 1 - 2 months, causing excessive setbacks to development and sometimes serious reduction in colony size. This leads to exposure of the combs to wax moth attack, resulting in fouling of combs and absconding by the colony.

The lack of good quality equipment, and relative lack of skill in management procedures, were other factors which handicapped production.

Basis For Action
Programme

State Interest In order to evaluate properly the significance of features affecting beekeeping for honey production in previously uninvestigated areas, it would be necessary to run an observational study on an effective scale, and preferably also to carry out a small pilot project, utilizing, as fully as possible, all the natural advantages of the area. The Government of Sri Lanka has previously been reluctant to do this, or even to entertain such an idea. With the training of an Agricultural Officer in the Apiculture Department of the University of Guelph in Canada, a fresh interest in the development of beekeeping was initiated. The Canadian International Development Agency, which was assisting beekeeping development projects in tropical countries, offered their assistance to the Sri Lanka Government for setting up a development project in this country. The interest of the Sri Lanka Government was also no doubt stimulated by the rising unemployment in rural and plantation areas, especially as honey production could possibly be a source of productive occupation and income to farmers.

Favourable
Factors

The features that have been recognized in this connection are very briefly considered below.

The forest and natural vegetation of this country does support the life of natural bee colonies, which are quite common in many parts of the country. It seems logical to presume that the honey and wax produced by them, which is not lost, could be secured and utilized to augment the food and improve the economy of the rural population.

On current and past experience in the country, there are indications of potential honey flows from the following sources, apart from the natural forests, which are potentially the best sources of honey flows in the tropics.

- (a) A potential flow from plantations of eucalyptus at the mid-country elevations, now quite appreciable in extent, especially on the eastern side of the island (July, August, September).
- (b) A potential flow in rubber plantations, especially in the south-western region (February - April).
- (c) A regular, though comparatively slight, flow from coconut, and also mustard and gingelly amongst annuals.

Some of the crops now widely grown in this country have been known elsewhere to be good honey crops, but their possibilities in this country for honey production have not yet been tested effectively.

Requirements
To Counter
Intrinsic
Handicaps

Many local factors, chiefly associated with climate and weather affect honey production either directly or indirectly, and limit yields to an extent which rules out this activity as a full-time occupation, or its organization on an industrial basis. As such, individual benevolence and purely personal interest are inadequate for effective investigation or development.

Also, in view of the relatively poor state of development previously, it is necessary to pursue basic investigation with adequate provision. In order to ensure proper relation to the economy of the country, it is desirable to gear it to an applied scheme of production by subsidizing a pilot project of definite duration.

Preliminary
Action

On the basis of assistance received and expected from the Canadian International Development Agency, an immediate programme of preliminary action has been set up with the following objectives:

- (a) The investigation and demarcation of suitable vegetational areas to promote beekeeping for honey production.
- (b) Securing productive strains of the local honeybee and selecting, breeding and multiplying the most satisfactory of these strains.
- (c) Working out an efficient and economical system of bee management, after the manner of progressive beekeeping for honey production as carried out with *Apis mellifera* in the west, and in the various development schemes in the tropics which have made progress.
- (d) Establishing and developing an applied or extension programme to test effectively the findings of investigational work, and guide its further progress. In this, it is expected that advantage could be taken of developments and achievements in South India with *Apis cerana*, under conditions which are very comparable to those in Sri Lanka.

References

1. Baptist, A.D. (1951) A geography of Ceylon. Madras: Orient Longmans Ltd
2. Butler, C.G. (1953) The present status of beekeeping in Ceylon and possibilities for its future development. Brit. Agric. Bull. 6: 125-128
3. Dayaratne, K.H. (1968) A season's performance of an Apis colony at Erabedda. Vidyodaya J. Arts. Sci. Lett. 1 (2) : 221-223
4. Kannangara, A.W. (1939) Beekeeping. Trop. Agric. 92: 94-99
5. Perera, L.A.S. (1960) Beekeeping for honey production. Trop. Agric. 116 : 31-45.