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Beekeeping requires little financial input, time or land. It provides extra, non-perishable food and a cash income. Eva Crane examines the possibilities.

BEELINES FOR DEVELOPMENT

Four characteristics of developing countries make them suitable for apiculture. First, almost all lie in the tropics and subtropics, where the climate is warm enough for bees to forage all the year round, and a dearth period due to drought or heavy rainfall is shorter than the winter dearth period at higher latitudes. Secondly, many tropical areas—even dry ones—produce a wealth of flowering plants that yield nectar from which bees can produce honey but which may otherwise be wasted. Thirdly, the honeybees evolved in the tropics (although some are able to live successfully in temperate zones and can survive quite severe winters).

Finally, the whole region—about half the world's land area—is one where beekeeping can be expanded, and in some areas quite dramatically, whereas this is no longer true of most of the temperate regions. At least 145 developing countries are currently interested in extending and improving their beekeeping.

**Sub-tropics profit**

Large-scale beekeeping tends to be most profitable in the subtropics. Modern methods of hive management were developed in the temperate regions, especially in USA and Canada, and in general they can be adapted to the subtropics and often give better yields there, because of the long season. These methods are not so adaptable to the full tropics, for reasons explained below.

In 1981 the total world honey production was 877,000 tonnes, of which 207,000 tonnes were exported. The net exporting countries are listed in Table 1 with the number of tonnes exported in 1981. The countries are grouped according to the zone in which they are mainly situated.

Almost all the exported honey goes to temperate-zone countries, four of which account for 84 per cent of it.

| German Federal Republic | 74,723 |
| Japan                  | 24,468 |
| USA                    | 35,071 |
| UK                     | 16,800 |
| **Total**              | 151,062 |

Figures vary from year to year, but the general pattern remains the same. The most dramatic change has been the ascendency of China, which did not export honey at all until the mid-1950s. Other developing countries that are known to have exported honey in recent years include Belize, Kenya, Jamaica, Niue, Tanzania, Tonga, Uganda.

The prominent position of subtropical countries is clear from the figures quoted. Countries of the full tropics are mostly in an early stage of exploiting their full capability, and could probably increase their honey production to 20 or 50 times its present level, or even more.

Honey exports earn hard currency. In general they can be achieved only where honey can be produced more cheaply than in importing countries. Low production costs are linked with a high honey yield per hive. In Germany and the UK—yield per hive is 10-25 kg but it is a hundred kg or more in exporting countries. Factors such as labour costs and transport are also involved.

Exporting honey involves organization by or of the beekeepers concerned, and the use of management methods which yield honey that meets the stringent requirements of importing countries. But in many countries of the full tropics and subtropics, exporting honey should only be the final step in beekeeping development. Especially in the poorer countries, beekeeping has other important functions which are more easily attainable. It provides:

- extra (non-perishable) food for the peasant farmer and his family, and an extra sweetener for their staple diet;
- surplus crops—honey and beeswax—from which the farmer can obtain a cash income;
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More primitive hive with moveable combs but no frames in use in Botswana. A feather is used to brush the bees off the honey comb.
The modern hive, of which the commonest type is the Langstroth, consists of a number of similar boxes open top and bottom, that are tiered one above another. Each box holds 9 or 10 frames suspended on two runners like files in a suspension filing cabinet, in which the bees build their combs. Below the bottom box is a floor-board incorporating a flight entrance for the bees, and above the top box is a protective roof. The bottom box or boxes constitute the brood chamber, where the queen lays eggs, the brood is reared, and the bees store pollen. Boxes are added above the brood chamber for honey storage, according to the bees’ capacity to fill them, and this depends largely on the honey flow. Honey is not stored continuously, but only when the main nectar-yielding plants are in flower.

Examining colony

A common operation in hive management is examination of the colony in a hive—separating the boxes so that the brood chamber can be inspected to check that the queen’s performance is satisfactory, to look for signs of any disease, and according to the season, to look at each frame to find any queen cells—a sign of swarming, or preparation for swarming. Appropriate action must then be taken, which may involve relocating a number of frames and hive boxes. During such an operation many bees will be flying around the hive—and the beekeeper—but he is protected by a boiler suit and veil, and is only likely to receive an occasional sting into his clothing or hands.

The tropical bee Apis cerana, which is rather gentle, can be managed similarly, although—except with the larger strains in temperate-climate high Himalayan valleys—it is not possible to develop large and very productive colonies. With the single-comb Asian honeybees, hive management is not needed, although much could probably be done to make the honey harvesting easier by arranging suitable ‘aparties’ where colonies were congregated. It is the tropical African bee—and the Africanized bees in South and Central America—that present the greatest challenge with regard to management. Since 1956 much attention has been paid to the problem in the Americas, due largely to concern in the USA that the Africanized bees could probably be done to make the honey harvesting easier by arranging suitable ‘aparties’ where colonies were congregated. It is the tropical African bee—and the Africanized bees in South and Central America—that present the greatest challenge with regard to management. Since 1956 much attention has been paid to the problem in the Americas, due largely to concern in the USA that the Africanized bees could probably be done to make the honey harvesting easier by arranging suitable ‘aparties’ where colonies were congregated.

Learning more

What has been said only touches the fringe of the subject, and because beekeeping offers a real opportunity for many men and women in developing countries to add to their food and income, some information is given below on ways of learning more about bees and beekeeping. Apiculture or beekeeping has a great potential for expansion and improvement in the tropics and subtropics, whereas in the temperate zones it is already much more fully exploited. At the simplest level beekeeping can provide peasant farmers with extra food and cash. As a large organized industry in subtropical countries, notably China, Mexico and Argentina, it already provides the bulk of the honey exports on to the world market. There are many stages between these two extremes, and beekeeping can be fitted in with other work, since bees need rather little attention. In different countries the management of bees is similar in principle, but differs in important details, and it is vital to have knowledge about what is needed, if the best returns are to be achieved.

The International Bee Research Association (IBRA), Hill House, Gerrards Cross, Bucks, SL9 0NR, U.K., has on its staff an Information Officer for Tropical Apiculture, funded by the Overseas Development Administration. Specific enquiries may be sent to her, and she can, for instance, provide the address of a contact in almost any developing country from whom more direct help may be expected. A Newsletter is issued free of charge. Also IBRA has published or collaborated in a number of books and leaflets designed to help apiculture in developing countries; all can be purchased from IBRA and many are available free of charge to addresses in developing countries. Some recent examples are given below and details can be obtained from the address above. Source Materials in Apiculture. Series of 10 leaflets on such subjects as obtaining beekeeping supplies, where to get training in beekeeping, where to apply for grants, what books are available, and what plants are worth growing for honey production.

Bibliography of Tropical Apiculture in 24 parts, containing about 4000 references; also 14 Satellite Bibliographies with a further 2500 references.

Technical Cooperation Activities: Beekeeping. A directory and guide. The directory has entries under 85 countries, and IBRA has 130 relevant feasibility studies and reports. The guidelines cover feasibility studies and project recommendations; and summarise apicultural and economic factors.


Apiculture and Honey Production in the Developing Countries of the Tropics and Subtropics. Book commissioned by FAO to be published in 1984 in English, French and Spanish editions.

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