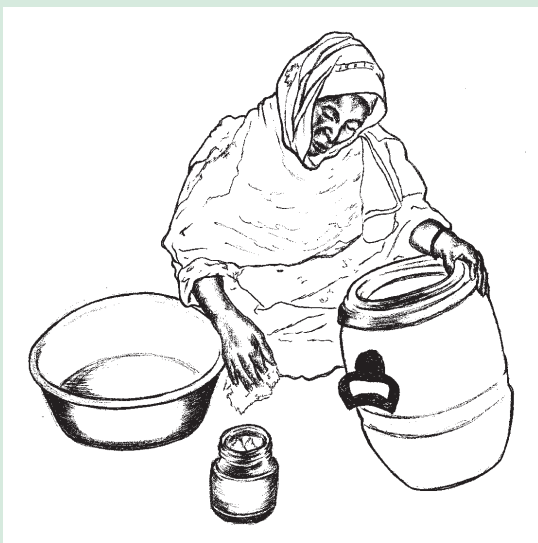


Bee products

properties, processing and marketing



partageons les connaissances au profit des communautés rurales
sharing knowledge, improving rural livelihoods



Agrodok 42

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This volume is published in cooperation with NECTAR, Netherlands Expertise Centre for (sub)Tropical Apicultural Resources. NECTAR is the association of tropical bee-keeping experts in the Netherlands.

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Foreword

Keeping bees requires knowledge and experience if it is to be done well. This knowledge and experience can be obtained by observing and learning from an experienced beekeeper or through study and practice. Once this has been achieved, a well-qualified beekeeper can produce bee products.

Even if someone knows exactly how to keep bees, the products he or she produces may not meet market demands and thus may not be able to provide a sufficient income. It is important to realise that the products have to be bought by others, who determine what demands must be met in order for the products to be worth a certain selling price.

One of the most important market demands is quality. A product has to be consistently good. It also has to be free of impurities and additives. It also has to look good.

The authors of this booklet are all experts in their areas of beekeeping and are members of NECTAR. But this booklet is not a scientific publication. Its aim is only to show how it is possible to make good products with limited resources.

This booklet has been published simultaneously with the revision of *Agrodok 32: Beekeeping in the tropics*. Contributions to contents were made by Marieke Mutsaers, Henk van Blitterswijk, Jaap Kerkvliet, Leen van 't Leven en Jan van de Waerdt.

Leen van 't Leven

Chair of NECTAR

On behalf of all co-authors of this Agrodok

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1 Introduction

Honey bees live in colonies, as described in detail in Agrodok 32 *Beekeeping*. The worker bees in the colony collect various substances in nature, which their colony uses, for example to feed the adult bees and make the colony grow, as nesting material or to protect the colony. By collecting from the vegetation the bees also have an impact on the vegetation: cross-pollination leads to better fructification and to seed formation by flowers that produce fruits or seeds.

Raw materials and the bee colony

Bees gather substances from the vegetation, add substances to them, process them and allow them to ripen. These then serve as raw materials for other bee products. With the help of specialised organs and glands, the raw materials are transformed into new, very different products. Figure 1 is a schematic drawing of the location of products in the beehive. When we speak of a beehive, we are referring to both the bees and the whole nest.

Bees collect substances from the vegetation and process these in the hive. The origin and composition of these substances are given in figure 2 with the same shading as in figure 1.

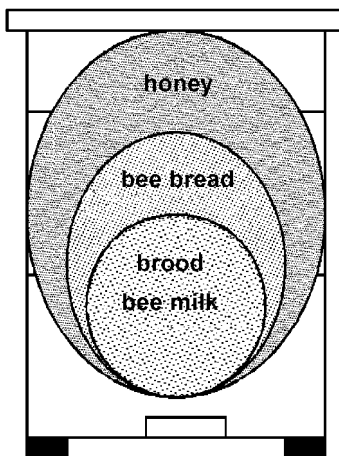


Figure 1: Location of products in a beehive

Since bees do everything together and pass the collected substances on to each other, called trophallaxis, substances from the bees' own saliva, stomach fluids and gland secretions are continually added. All

bee products also contain small amounts of other bee products. As a result, bee products can be made up of hundreds of different substances.

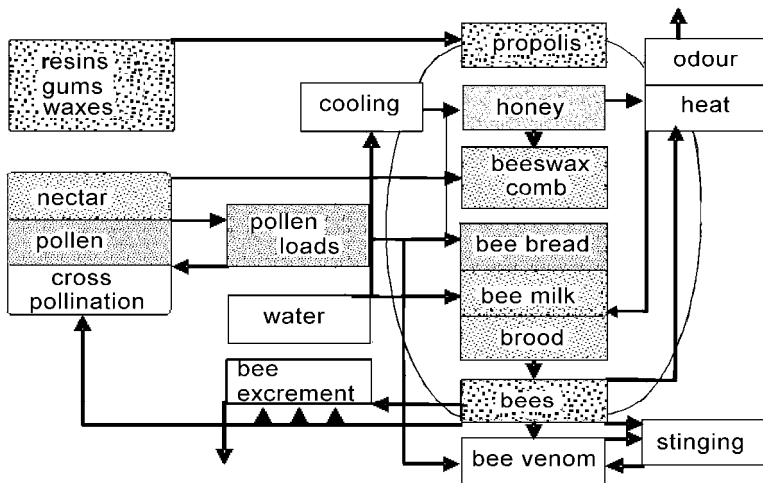


Figure 2: Substances from vegetation and the products bees make of them

Table 1 gives the same information as figure 2 but in different format.

This booklet covers all bee products in all stages of the production chain. The point of reference is always the beehive itself, including the use of the products by the bees. The beekeeper is also a central figure because the quality of the beehive's products depend on both the colony and the beekeeper who tends the bees and harvests their products. Further processing such as extraction and drying are also part of the beekeeper's job. Marketing is also usually most successful when it is done by the producer him- or herself.

This book was written by beekeepers for beekeepers and it aims to give information about good production and processing methods for bee products, but also about possibilities to earn good revenues. Pollination is thus also included as a product of beekeeping.

Table 1: Raw materials and bee products

| Vegetation | | Inside the hive | | |
|---------------------|------------------------------------|--------------------------------|--|---|
| substance | how bees transport them | processing into ... | location | function |
| Pollen | In pollen baskets on the hind legs | Bee bread Bee milk Brood | In lower part of combs In brood cells with larvae In centre of brood | Food Food Food Development |
| | On breast hairs | --- | Outside the hive | Pollination |
| Nectar | In honey stomach | Honey | On top and on outer combs of hive | Food Raw material for wax and warmth |
| | | Wax | In the form of comb | Building of combs Nest for brood and food |
| Water | In honey stomach | Evaporation | Honey stomach of bees | Cooling Production of bee milk |
| Gum Resin Wax | On legs | Propolis | Wall of hive | Hive wall putty Heat regulation Cleaning of cells |