Constraints and opportunities

Sustainably developing the apiculture sector in Cameroon actually requires little investment. Cameroon has an ideal natural environment for beekeeping, and using traditional and adapted methods can produce superb, high quality, large quantities of honey with relatively low production costs.

- Quality standards for honey, adapted to the Cameroonian sector, are needed, to assure good prices, and a quality that ensures consumer and buyer confidence. By-products (candles, wine, cream, etc.) currently produced are often of basic and variable quality and crudely marketed, making it difficult to compete with more sophisticated and manufactured products on a price–quality basis. There is however expertise readily available in Cameroon on production techniques and training services for beekeepers (listed in the right panel) that can provide solutions to these issues.
- Marketing as a group. Individual producers harvest honey in quantities often too small to create economies of scale that permit producers to charge lower prices. Working as a group can overcome these disadvantages but requires business expertise and well-organised producers. Working in groups can also increase the scale of production, particularly for processing and selling the by-products and adding significant extra value to hive harvests, especially for wax. Processing adds more value and provides locally demanded products with a ready market (candles, soaps, creams etc).
- Most packaging is unsatisfactory; the majority of honey containers are re-used bottles or inadequate plastic containers. There are, however, some innovations (for example mini plastic sachets and new labelling). The Netherlands development agency SNV has started an initiative to produce on a large scale a specially designed bottle for the honey sector in Cameroon.
- Few organisations operate along the whole chain (except for a handful in the Northwest Region), who embrace production to processing, wholesale and retail. Greater specialisation is another option to focus on one aspect of the chain, as is greater collaboration and exchange between actors in the chain.
- Creating valuable by-products from processing using local technology can generate better quality products, albeit with some investment. Income is simply thrown away when hive by-products are not harvested or used, especially the wax which is always harvested with honey. Creating and selling by-products for the local market in rural areas can fill basic needs: candles, polishes (wood, shoe, floor, etc), creams, wine and awareness raising on how to cook and mix honey with other products (for example nuts).
- Environmental risks are present in using traditional smoking during harvest. This ancient technology is effective as long as the beekeeper avoids bush fires and oversmoking, which affects honey flavour. Using local trees and materials to build traditional hives is effective and cheap, with production capacity equivalent to that from modern hives. However, traditional hives are less easy to harvest sustainably and to check maturity. (Harvesting unripe or immature honeycombs both risks the future health and existence of the bee colony and results in honey with excessive moisture content, often leading to fermentation.) Ensuring the sustainable use of local materials is also essential for long-term viability of the sector.

- Markets for apiculture products do exist in Cameroon and abroad. What is missing is information exchange on demand and supply among buyers, sellers and consumers. The majority of organisations sell in nearby villages and towns. This results in local abundance and competition, and lower selling prices. Cameroon is, however, currently importing honey. A large, unsatisfied market is located in Douala, Yaoundé and the North and regionally in Central Africa and the Middle East.
- The gender imbalance in the sector (women are underrepresented) is mainly because of the physical nature of placing traditional hives high in trees. In several African countries, however, women are increasingly involved in beekeeping. They keep their hives close by or in the house in Ethiopia and place modern hives in nearby fields, not up high. They have reduced risk of theft and made monitoring and harvesting easier.

Production and marketing techniques

Production equipment is rudimentary both at beekeeper level and within many organisations. Generally beekeepers use grass smokers, traditional hives (used by 97% of beekeepers, costing on average 1500 FCFA each) and basic filtration using wire mesh or fabric. Wax is often separated from honeycomb using the boiling water technique and moulded in enamel basins. Due to the way honey is extracted from the comb, up to 30% of the honey is lost. In some areas this washing water is used to make wine and honey beer, in others it is thrown away. While effective and low cost on a small scale, for larger scale and good quality production, these techniques are ineffective and time consuming. Where honey hunting is the main harvest method, fire often results in colony decimation.

Contribution to livelihoods

In the Northwest beekeeping is often not a principal source of revenue but an important secondary source. Incomes from beekeeping contribute from 10% to 70% of total annual income (average 30%), with more than 80% of beekeepers deriving 30% to 60% of their annual income from apiculture. In Adamaoua, beekeeping is traditionally done by individuals or families, and not as a collective activity. On average, 68% of households in Djerem are involved in beekeeping. For 55% of these it is their primary income source, providing up to 48% of total household income. Seasonal variation allows for 2 harvests in some years and wide flowering variation results in alternating years of good and bad production in the savannah and mountain forests. Weather changes also strongly influence the quality and quantity of production, resulting in extremely variable incomes. In Cameroon, despite incomplete and missing data about the sector, it is estimated that 3.3 million litres of honey produced annually, valued at around 2 billion FCFA. Approximately 10% is consumed by beekeepers. About 235 tonnes of wax are produced annually, primarily for regional export, with an estimated value of 530 million FCFA. Other apiculture products add about 1.5 million FCFA to total revenues from the sector annually.

Priority actions for a sustainable apiculture chain

Create a database and market information system, using media such as local radios, newspapers and mobile phones, to understand, support and monitor the apiculture market across the country and over time;

Research the impacts of climatic change and its effects on beekeeping, the effects of using different hive types and alternative management, harvest and transformation to increase profits and decrease workloads;

Ensure dissemination of designs and production of key beekeeping equipment (hives, harvesting clothes, smokers, filters, solar melters for wax, etc.) to support local adaptation of technology and enable access to equipment;

Support research on apiculture development and strengthening the honey market chain;

Create specific training centres for beekeeping and processing;

APICULTURE PRODUCTS IN CAMEROON

Mobilization and capacity building of Small and Medium Enterprises in Non-Wood Forest Products Value Chains in Central Africa

Apiculture products in Cameroon

Apiculture products include honey, wax and propolis, all of which are non-timber forest products (NTFPs) of animal origin. They have medicinal and cosmetic uses and are traded locally, nationally and internationally. Apiculture products are important for both rural and urban populations in Cameroon.

What are apiculture products?

Bees produce several useful materials, including honey, wax, and propolis. Honey is the best known product that comes from bees (*Apis mellifera*). Often collected in the wild from hollow tree trunks, it is also harvested from domesticated bees living in hives. Bees make two kinds of honey depending on its source: flower nectar and honeydew. The biochemical composition of both types of honey is largely naturally occurring saccharose, which bees extract from flowers and transform in a complex process to produce a compound containing about 18% water and 80% sugars, mainly fructose and glucose. Bees secrete wax to form an energy-rich, protective structure for storing bee larvae, honey and royal jelly. Propolis is a resinous mixture that bees gather from tree buds, sap and other botanical sources. The bees use it like cement to fill unwanted open spaces in the hive. Its colour varies according to its botanical source, but it is commonly dark brown.

Where do you find honey in Cameroon?

Honey is found wherever you find bees! In Cameroon this is mainly in the savannah and montane forest areas, and in fields where there are melliferous[1] trees and plants. The principal honey zones in Cameroon are Adamaoua, producing more than 3 million litres annually, the Northwest Region with 92 843 litres and the West Region with 48 900 litres. The largest wax production zone is in Djerem around Ngaoundal; wax is also produced in smaller quantities in the Northwest around Bui, Belo and Mezam divisions, in the South West in Kupe division and om Mifi in the West. In the humid forest zone, honey is mostly harvested from the wild, with little beekeeping practiced.

What are the principal uses of apiculture products?

Honey is used as a high energy food. It is also valued as a treatment for coughs, skin infections and burns and it is sold to earn cash. It has an important cultural value in communities in the West, Southwest and Northwest regions, and in the humid forest zone for the Baka ethnic group. Wax is used to manufacture candles and is used in cosmetics and pharmaceuticals, particularly for its hydrating and emulsifying properties. In Cameroon, traditional metalworkers also use wax to create moulds. Propolis has medicinal value; it is used in traditional medicines and in demand by European and American pharmaceutical companies. Beekeeping can contribute to environmental integrity, as some beekeepers protect the forest to ensure their harvests, meaning that beekeeping can often be used as a support to forest conservation initiatives. Bees are also major pollinators, essential for agriculture and fruit-bearing trees.

Who are the actors in the apiculture chain?

Producers. On average a beekeeper has 5 years of experience, and the most experienced may have up to 40 years. It is estimated that there were at least 20 000 beekeepers in Cameroon in 2009. More than 8600 beekeepers were known to be members of 639 groups (Common Initiative Groups, co-operatives or nongovernmental organisations) in 2008. There is a great variation in the level of collective action, with most such organisations in the Anglophone zone. These organisations have been working for 5 years on average, indicating that the sector is stable and established but also growing.

The number of hives per beekeeper varies widely across regions: the average is 11, but in Adamaoua it is 45; in the Northwest, 16; and in the Southwest and West, 3 per beekeeper. Average annual honey production per hive per year in the Northwest was

[1] *A melliferous flower produces substances (nectar, pollen) gathered by insects and transformed into honey. Examples are Prunus africana (pygeum), Lophira lanceolata (kofia), Dacryodes edulis (safou), Bombax pentandrum (fromager), Vitellaria paradoxa (karitie) and trees like eucalyptus, mango, avocado, coffee and papaya.*

10 to 15 litres in 2009. This provides an income per hive, if all by-products are collected, of about 26 250 FCFA annually[2]. The majority of beekeepers, however, harvest only the honey and throw away other hive products. An average Oku and Belo beekeeper's annual income from apiculture was 281 000 FCFA in 2007. Calculating all associated costs, the average profit was 29 760 FCFA. In Ngaoundal, average annual income from apiculture in 2007 was 207 000 FCFA, 43% of their total household income of 436 000 FCFA. A litre of honey from a producer in Adamaoua sells for at least 250 FCFA and is resold for between 1500 FCFA and 2500 FCFA in the cities. The producer selling price in the Northwest is higher, about 1000–1500 FCFA, due to the lower quantities, larger customer base and higher market demand. This appears to be a major inflation of price and profit. However, it is important to note that this margin includes transport, storage, packing and selling cost. The intermediary carries the risk for selling the honey.

A small proportion of the harvest (2%–10% in Oku and Belo) is consumed by beekeepers; most honey produced in Cameroon is sold domestically. Honey is exported from Adamaoua to adjacent countries in Central Africa and the Middle East. In 2010 for the first time, 22 tonnes of certified organic and ethical trade honey was exported to Europe.

Yellow wax, not black or smoky wax, sells for about 2500 FCFA per kilo. Propolis prices range between 4500 and 10 000 FCFA a kilo, but this is often only available in small quantities: Less than 100 kg are produced nationally.

Processors. Filtering, bottling and processing hive products into other products is usually conducted by small groups and companies to add value. Processing is largely of low quality and on an artisanal scale, although nicely labelled and securely packaged honey has recently started to appear in the large cities of Cameroon. In the West, Southwest, Northwest and in Yaoundé, some stores dedicated to apiculture products exist. Recent innovations include selling honey in sachets and promoting new recipes and foods that contain honey, for example, yoghourt, honey bread and cake. Wax from honeycomb is one of the easiest by-products to process and is used to make a diversity of products, often in combination with honey and propolis, albeit in small but growing commercial quantities: soap, candle, shoe polish, pomades, body lotion, creams, cosmetics, medicines, honey wine and sweetening for palm wine and corn beer.

Major costs include transport and sufficient packaging to enable transport along bad roads, as rural production zones are remote.

Intermediaries in the network include wholesalers, transporters, cooperatives and groups and *buyam-sellams*. At the end of the chain are retailers who sell to individual consumers and households, including restaurants, artisans, pharmacies, market traders and supermarkets.

Are there rules and regulations?

Apiculture is under the competence of the Ministry for Livestock, Fisheries and Animal Industries (MINEPIA). There is not regulation on honey quality or beekeeping yet. Apiculture Interprofession is an emerging platform that aims to introduce standards for Cameroon. In regions which received more training and support (such as the Northwest, Southwest and West) many beekeepers follow good hive and honey management principles, which are widely documented (*see Resources*). Organisations that want to sell honey in Cameroon or to export it need MINEPIA-accredited production and collection centres. For export specifically to Europe, there is a Honey Residue Monitoring Scheme set up in 2009 to ensure honey exports are free from chemical residues. Organisations must register with MINEPIA and conduct laboratory analysis of honey samples that prove the quality of their honey before it is accepted for export.

[2] *The figure is based on average honey production of 12.5 litres and a retail price of 1500 FCFA per litre for earnings of 18 750 FCFA; 2 kg of wax worth 5000 FCFA; and 0.5 kg of propolis worth 2500 FCFA.*

Establish processing activities for honey and its by-products in the production zones to help combat youth and rural unemployment.

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