

Top-Bar Hive Beekeeping

By Richard Ridler, Master Beekeeper and Chairman of Bees Abroad



Top-bar beekeeping and other less interventionist methods are growing in popularity in the UK. Richard Ridler explains the different drivers for this.



KTBs in use in Africa. The lower image shows a KTB with a raffia and grass roof. Photo courtesy of Bees Abroad.

This article attempts to explain why the Kenya Top-Bar Hive (KTB) is the hive of choice in Africa and describes some of the practicalities involved in using them. The factors which drive the decision to choose top-bar hives are very different in Africa and UK. African beekeepers are seeking supplementary income in hot, developing countries whereas UK hobby beekeepers, living in a temperate climate in the first world, are seeking a more sustainable, natural and less intrusive approach to beekeeping.

Recent research into beekeeping in Africa¹ established that attempts to use framed hives, generally Langstroth hives, almost always end in failure. This is principally attributed to the fact that African bees are generally more defensive than our UK bees, which makes inspecting and manipulating colonies unduly unpleasant. This is compounded by practical difficulties encountered with the more sophisticated frame technology. Also, top-bar beekeeping, by its nature, has the advantage over framed hive beekeeping of providing a regular crop of wax, which augments income from honey.

The idea of top bars is not new; it can be traced back to Greek times. The KTB was invented at Sparsholt College of Agriculture in Hampshire in 1965. Originally intended to be the Ugandan Top-Bar Hive it became the Kenyan Top-Bar because travel to Uganda became impossible during the time of Idi Amin. The design requirements for what became the KTB were an absolute minimum cost and an ability to make it with very basic tools. Also vital is an ability to withstand hot, destructive environments and to suit a beekeeping style with defensive African bees.

The KTB consists of a row of adjacent horizontal parallel bars laid on top of a long box below each of which bees build their comb. The bars sit tight alongside each other and are covered by a waterproof roof. There is not the need for the type of precision woodworking equipment required to make framed hives, which demands the accurate maintenance of bee-space between all parts. The bees mostly build comb naturally along the bars with the correct separation all round.

The only critical dimension in a KTB is the width of the top-bar. For *Apis mellifera scutellata*, the most common bee in Africa, although there are other races, the suggested width is 32–33mm, but for *Apis mellifera mellifera* it is 34–38mm depending on which book you read. *Apis mellifera mellifera* are slightly larger so they need a greater bee-space. As long as the box is about the right shape and size the hive will work. It is important that there are no gaps through which predators can enter. I have seen many a fat lizard sitting on the top-bars comfortably feasting on bees!

KTBs in Africa are generally made from local hardwoods as softwoods would soon rot. An even lower-cost method is to make them by covering a structure made from small branches, bamboo or wicker, with mud. Roofs are needed to keep them waterproof and can be made of anything from a sheet of plastic or split bamboo to a piece of corrugated iron held down by rocks. Hives are raised from the ground using anything available and may be suspended from trees by ropes or wires depending on the predators in the area. The equivalent UK top-bar hives tend to be built to a higher specification with such things as legs, landing boards, varroa floors, insulated roofs on hinges and even windows for inspection.

Prior to use the top-bars must be primed along the mid-line of the underside of the bar to encourage the bees to start their comb building in the right place. This is best done with a line of fresh wax. To encourage the bees to enter hives in both Africa and the UK, hives are baited by smearing the inside with various concoctions including lemon grass, local beer or wine, cassava, maize flour and banana skins.

Like other top-bar hives the KTB does not enable the more complex manipulations that are possible with fully framed hives. Before the advent of the KTB African beekeepers had the same problem that our British predecessors had with skeps; it was impossible to inspect inside the hive and the harvesting of honey was personally challenging. The KTB solves this problem and makes beekeeping far more accessible to novices, thus enabling far greater uptake.



Filtering honey in Africa. Photo by Richard Ridler.

KTB beekeeping in Africa involves few interventions, no queen-rearing, Bailey comb changes or paper uniting. However, dividing colonies is widely practised in order to replace colonies that have absconded and to ensure that hive use is maximised. The routine of an African beekeeper is mainly to observe that all is well, without opening the hive. If good numbers of bees are flying in and out of the entrance and not elsewhere, pollen is seen and the hive is in good order, all is assumed to be well. The handling of top-bars with comb requires particular care. If they are not kept vertical at all times the comb breaks off the bar. In top-bar hive beekeeping comb to be harvested is cut from the top-bar, broken up and the honey drained through a cloth.

In the UK, follower boards are often used; these are top-bars with boards beneath, which enable both the volume of the hive to be



Building a top-bar hive, courtesy of Bees Abroad.



Unripe honeycomb from a KTB, courtesy of Bees Abroad.

adjusted and the colony to be divided. The level of intervention depends on the beekeeper, some preferring a more 'natural' approach than others. For example, if inspections are carried out and swarm cells seen the colony can be split within the one hive using follower boards and separate entrances. A more natural approach might be to rely on bait hives. Another example is varroa treatment where icing sugar, the 'bee gym' or an oxalic acid vaporiser might be used. In the UK, where more money is available, a press may be used for honey extracting.

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Warré hives

The Warré hive is another top-bar hive created for different reasons and of a totally different appearance to the KTB. Invented in France in the early 20th century by Abbe Warré and known as the People's Hive it was intended to provide an environment closer to nature. The KTB has a single box allowing the colony to expand horizontally whereas the Warré hive consists of identical stacking boxes allowing the colony



UK-style top-bar hive. Photo by Richard Ridler.

to expand vertically. Each box in a Warré hive has a set of top-bars under each of which the colony builds comb. The roof is specially designed to provide good insulation, to control air flow through the hive and to avoid condensation. It has been suggested that vertical colony expansion is more natural to bees than horizontal expansion, but they appear to thrive in either. There is no doubt that vertically expanding hives retain heat better, which is advantageous in colder climates whereas horizontally expanding hives do not have the same heat retention, which is advantageous in hotter climates.

The Warré hive is particularly easy to use. As the colony expands additional boxes are added beneath the brood, nading as against supering; the brood descends leaving the honey stores above. If there is a surfeit of stores the box containing them can be removed, but care must be taken to leave adequate stores for the colony. No attempt is made to control swarms other than by providing catcher boxes. The

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UK-style top-bar hive with Warré hive in the background. Photo by Richard Ridler.



Left-hand panel: Warré hive. Right-hand panel Warré hive with windows. Photos by Richard Ridler.

hive need never be opened nor the colony disturbed except once a year to remove honey. Inspections are not made, but windows may be included in the sides of boxes. Many Warré hive beekeepers do not treat for varroa, but an oxalic acid vaporiser can be used.

Both KTB's and Warré hives have a following in the UK among the small but growing number of beekeepers seeking a more natural and less interventionist style of beekeeping. Their study and understanding certainly helps us examine and question the methods of beekeeping most of us were brought up with.

For ‘Bees Abroad’ the top bar hive makes beekeeping more accessible. It plays a key part in achieving our objective of relieving poverty in the poorest parts of the world. We at Bees Abroad are all beekeepers and we are all volunteers. We can make a real difference to the lives of the very poorest people in the world by helping to form beekeeping groups which produce and sell honey. The extra income pays for education and medicines. It is a very low tech. and sustainable way of helping that works.

“For Bees Abroad the top-bar hive is fundamental to our success. It is the tool by which we achieve our mission of relieving poverty in the poorest parts of the world.”

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Reference

1. Carroll, Davey & Odera. *Lessons from the Field*; African Beekeeping Resource Centre, May 2017 (if you would like a copy just send me an email).

Original article reference:
BBKA News 2018; 225: 50–53.