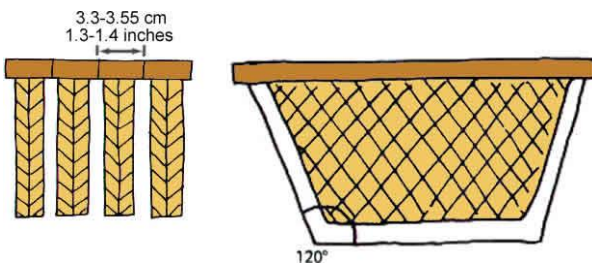


TOP BAR TIPS



Naturally, bees construct their nests to maintain a fairly regular space between combs. The space allows the bees to move between the faces of the panels to attend to the brood or the cells containing pollen or honey food stores. That measure is referred to as the “bee space” and, for the western honey bee, *Apis mellifera*, is about 0.6–0.95 centimeters ($\frac{1}{4}$ to $\frac{3}{8}$ of an inch). The lower ranges are more appropriate to strains of African honey bees-- which are smaller than European counterparts... but more defensive, and more productive, in tropical ecosystems.

Natural comb is U-shaped. When attached to a secure foundation, like the baobob tree in these photos, the bond along the comb’s top edge is structurally stable enough that it can support the combs’ full weight, even when combs are full of honey or brood. When constructing within cavities, bees will fill up the available space-- but will attach the combs along their side edges to provide additional support for the resulting rectangular combs.



Top bar hives allow bees to build U-shaped combs that do not need frames-- which require relatively refined carpentry skills and building materials. The width of the top bars should be 3.30 to 3.55 centimeters (1.3 inches to 1.4 inches). That width allows bees to build combs whose midribs/centerlines are about what they would be in natural nests.

If bees build their combs across top bars that would prevent the ability of the beekeeper to manipulate individual combs. To keep bees from building their combs across the top bars, a guide of some kind should be provided to the bees. One way of doing so is to mash beads of softened beeswax along the centerline of each top bar. (Don’t use paraffin wax for guides, it is repellent to bees.)





Alternatively, a groove can be cut or gouged along the center of the bar. Then melted beeswax can be poured, very carefully, into the channel and allowed to cool as has been done with the two top bars shown at left. This is trickier than it may seem and can result in drips running outside the groove which can lead to multiple combs being constructed along a single bar.

Similar to the above is the variation of fitting narrow strips of beeswax sheets into the channel cut into top bars. Cardboard can, similarly, be drenched in melted beeswax and then can be fitted into the slots in the top bars—as shown at right. Strips used in this way should not extend more than .6 cm (1/4 inch) from the top bar. Otherwise, bees may not attach the strip firmly to the top bar and the comb, when it is loaded and heavy, may pull loose from the top bar. Here, and in other photos, one can see that the ends of the top bars have been cut so that the top bars will rest evenly, without rolling, when placed into a KTBH.



Cutting a wedge shape along the bottom of the top bars is popular in many parts of the world. The shape of top bars of this kind is often enough of a guide that it isn't essential to prime them with beeswax—but, to do so, the “blade” of the top bar can easily be dipped into a long trough of melted beeswax. This technique is especially useful if the top bars are to be used in bait hives. Note in the photo at left that a beer bottle cap is very close to the width appropriate for use with African strains of bees—and is a handy measuring device where other measuring tools are rare.

Four top bars removed together from a Kenya Top Bar Hive illustrate how the combs built from them are very similar to those in natural nests shown above. Bees collect plant resins, which they use like varnish to coat the portions of the combs used for rearing brood. This material is called propolis or bee glue and has antimicrobial properties that protect the brood from some diseases. It is also sticky and somewhat of a defense against attacks from ants and other insects that might attack the nest. The coating of propolis, along with a build-up of larval skins, makes the lower portion of combs darker than the bands of comb above them in which food is stored.



The lighter portions of comb in the brood nest and on the outermost combs are where honey and pollen are stored to insulate the brood nest and to have food handy to feed the hungry young. The comb at left was transferred to a top bar from a wild nest. Combs cut from the nest were supported against the top bars using strips of cotton cloth, forming little hammocks beneath. Once the bees attached the comb to the top bar, they began cutting the cotton cloth away. Bees can be seen hanging on to a piece of the cloth that is hanging from the right-hand side of the comb shown at left. Unfortunately, the comb was not tied exactly along the centre of the top bar and the bees constructed another comb on the same bar.

A mature comb, removed from a Kenya Top Bar Hive, is ready for harvest. Note how the ripe honeycomb has been capped, indicating that it is mature and will last almost indefinitely if sealed away so that moisture from the air is not absorbed back into the honey. The uncapped cells at the bottom of the comb contain pollen, the protein source for bees. The photos in the last couple of columns highlight that many beekeepers manage their hives at night, when bees are cooler, less defensive and don't readily fly from the nest... making stings less frequent.





Fitting a KTBH with handles allows the hive to be carried stretcher style. The handles also make a handy spot to rest combs during inspections and can be used to hang hives or to attach to trip wires when arraying the hives in anti-elephant fences.

