Better beekeeping in top-bar hives
Entrances and roofs

Pam Gregory, UK

We hope that this series of articles will stimulate discussion and sharing of ideas, experiences and techniques. Beekeepers are renowned for their diversity of ideas! Read Bernhard Clauss's response to previous articles on page 8.

Entrances and roofs

I have noticed two things when looking at top-bar hives. Firstly, there is debate about the location of the entrance and secondly that, having carefully made a nice hive body with neatly cut top-bars, the whole thing is spoiled by a poor roof. So this article takes a look at these two issues.

Entrances

There are two choices of top-bar hive entrances - in the side panel or in one end (figures 1and 2).

Entrances in top-bar hive plans are sometimes shown as rows of holes located in the side panels. However, if you are using materials other than wood, especially plastered matting or strip materials, not only is it difficult to construct entrances in the side panels but doing so can affect the structural integrity of the hive, making it weaker. With these materials therefore the entrance is much better located in the end.

This has a small practical effect on the way the bees store their honey and consequently the way a beekeeper may wish to harvest it. Honey is always stored on the outside of the brood rearing area where it acts to protect the queen and insulate the precious brood. Thus honey is found above and below the brood combs and on the combs each side of the brood nest.

The honey is conveniently available for use as the colony expands and this also clears space for brood rearing - bees are so efficient. Furthermore, bees seem not to like storing their precious honey near to the entrance where it can be easily stolen. The practical consequence of this is that when harvesting honey, look at the location of the entrance. If the entrance is in the side panel the honey will be on each side of the hive probably in about equal quantities. If the entrance is in the end of the hive, the distribution of honey is similar to that found in cylindrical or other local style hives.

Size and number of entrances

The size of the entrance is important. The worst problems arise if it is too large because pests that harm the bees or spoil the honey crop can get into the hive. Ideally entrance holes should be no more than 2 cm diameter, one cm is probably better. This physically prevents pests such as large hive beetles from getting in and allows guard bees to defend the colony more effectively against other intruders. However, with holes this small, several entrances are needed otherwise the bees will get in each other's way, especially when they are coming and going furiously during honey flows. Small entrances, especially if they are close to the hive floor, are easily blocked by dead bees and are less easily cleared by the undertaker bees, so need more attention from the beekeeper. The entrances play an essential part in maintaining hive ventilation. The free movement of air around the colony helps to evaporate water which is especially important when the bees are fanning to ripen nectar into honey, or to maintain the brood nest at a constant temperature. Nectar normally contains 60-70% water. Bees must reduce this to 20% or less to produce ripe honey so a lot of water has to be removed from the colony.

Landing boards and sizes

There are debates about landing boards. In Europe many beekeepers like them; either for aesthetic reasons or because they consider it saves the bees some energy when taking off and landing. I have no evidence that it makes much difference either way - it is a matter of personal choice. For tropical bees however, it is especially important that a landing board is no larger than 2 cm. Otherwise lizards, toads and other predators have a nice, comfortable place to sit while they eat foraging worker bees.

(below) Cross section diagram of frames in the brood box from the book Practical Beekeeping by Clive de Bruyn

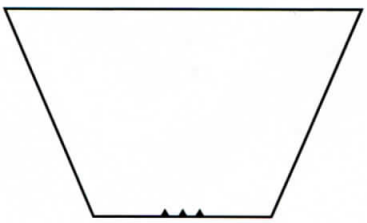


Figure 1. Triangular end entrances made by cutting v shapes

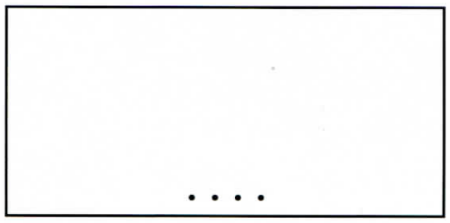
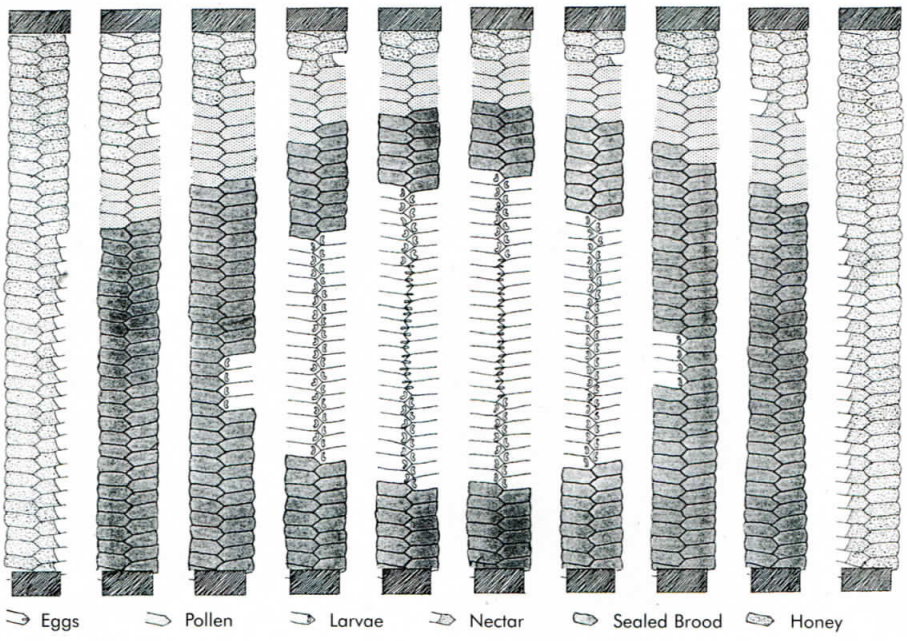


Figure 2. A row of circular entrances in a side panel



Hive roofs

Hives need good roofs to provide shade and to keep out rain and intruders. Often, a lot is said about the hive body, which is demanding to make, and little is said about the importance of the roof, so people skimp at this point to save money. But just think about your own home for a moment. However strong the walls are, would it be a comfortable place to live if the roof leaked? A leaky hive is an excellent recipe for encouraging absconding, so a good roof is especially important for tropical bees.

A flat, wooden roof, sometimes covered with plastic or roofing felt, is often shown in top-bar hive plans. These are easy enough to make but do add extra costs and suitable materials may be expensive or difficult to find. Quite often a sheet of wood or metal tied on top of the hive takes the place of a properly constructed roof. Sometimes plastic and grass are used: these can lead to real problems with leaks, and intruders such as robber bees, beetles and ants.

Alternative roof materials and styles can be explored. For instance, consider a thatched roof.

This protects against the effects of both sun and rain and tentially gives a space for protected sugar feeding. A handle on each end makes it easy for two people to lift.

Alternatively, put a thatched roof over the stand area for extra protection. Thatched roofs are comfortable for both people and bees, are made of inexpensive materials and look good.

For a cheap roof to protect hives from rain, that is quick and easy to make, use a large plastic bag that will cover the whole

length of the hive. Make a hole in each uncut corner of the bag and insert two fairly heavy sticks on each side of the bag pushing them right through the holes in the corners. Cover the top-bars of the hive with a good piece of plastic and maybe some grass insulation.

Then lay a thick stick along the length of the hive. Finally, put your bag over the top of the hive with the heavy sticks hanging over the edge of the hive to hold it down and give it a roof shape. You can tie the sticks together at each end for extra security. The stick on the top-bars acts to lift the plastic up and shed the rain.

Note: A warm, flat, many layered hive roof can be a nice place for a lizard or snake to bask: take care of snakes in the grass!