

Regressing bees to use 4.9mm foundation

Bees raised in cells drawn from standard 5.4mm foundation can adapt to building cells from 4.9mm but require the right conditions to do this successfully.

In the wrong conditions, the bees will tend to produce cells of varying sizes with large numbers of transition cells. The right conditions are when the colony is expanding, has lots of young bees for wax production and the new cells will be laid-up with eggs by the queen straight away.

Once all the worker bees in the colony have all been raised in 4.9mm cells, the colony is said to have been 'regressed' to the natural cell size. In the summer, this takes approximately six weeks.

The first and best option for an established healthy colony is a Bailey comb change. Prepare a full brood box of frames containing 4.9mm foundation. Place this over the original brood box. If the colony is not bringing in sufficient nectar it will be necessary to feed it with syrup (1:1 mix). After a week, check that the queen is laying in the new brood box, isolate the queen in this box by placing a queen excluder between the old and new box. Three weeks later and when all the brood has emerged, remove the old brood box by gently shaking the bees into the new one and then establish the colony as normal.

The second option for an established colony would be the shook swarm method. This has the benefit of an instant comb change (which may reduce pathogens) but the potential negative effects of stressing the bees and the danger of the queen absconding if an excluder is not placed below the new brood box until the colony is re-established.

The third option is to house a swarm directly to 4.9mm foundation. This appears to work very well, though the usual precautions when housing swarms of unknown origin should be followed.

Once the bees have been regressed the colony should be treated as normal. Only 4.9mm foundation should ever be used in the brood box. Foundation used in the supers can be the larger 'normal' size (5.4 mm) provided that a queen excluder is used to keep the queen out of the supers. If the colony is kept on 'brood and a half' all the foundation used in the brood area must be 4.9mm.

Some points to remember:

You should continue to monitor varroa levels in the usual way using a screen floor.

After regression to 4.9mm cells, some colonies will throw out drone pupae which is infested with varroa. This is normal.

Using 4.9mm cells is not a 'magic bullet' for varroa control. You will still find evidence of varroa but numbers are likely to be manageable by the colony with minimal intervention. Much depends on the natural levels of hygienic behaviour displayed by the bees. Some colonies are better than others.

Workers will be visibly smaller but this does not appear to negatively affect their performance in any way.

The small cell size means that prolific queens will produce more workers – bear this in mind for swarm control!

The above points are a 'rough guide' only and you should follow the well-established standard procedures for Bailey comb change, shook swarms and housing swarms.