

The Preservation of Beehives



5. Choice of exterior coating or finish

Water-based Acrylic paints and stains can be used. They have good weather resistance but are soft and prone to physical damage. Water-based shed and fence treatments should not be used on smooth timber normally used for the construction of hives.

Microporous finishes work well on hives. These treatments allow water vapour to escape from the wood without peeling or blistering the finish. They are also highly water repellent and flexible. The use of paints based on these principles gives an excellent and durable finish.

Woodstains may contain fungicides but no insecticides are used and these products can be used safely on beehives.

Woodstains and microporous finishes have a distinct maintenance advantage over conventional paints. After 3 to 4 years it is only necessary to clean down and recoat. Woodstains are classified as low or medium build according to their resin content. Low build finishes are preferable for migratory beekeeping.

Varnishes are unsuitable for use on hive parts. Under prolonged exposure to sunlight the finish breaks down and restoration is difficult.

Note: hive parts that have been treated should be dry and free from odour before the bees are housed in the hive.

Hive Roofs

Galvanised metal is the most suitable material for use in covering hive roofs. It does not need much maintenance. When the galvanised metal starts to fail a metal primer followed by a metal paint can be applied. If heat reflection is wanted then an aluminium or heat reflective paint can be used. Thin aluminium sheeting is a good alternative to galvanised material as it is corrosion resistant and needs no maintenance. Consider using silicone mastic to fix metal sheeting to the underlying structure, then you don't have to make holes in it for nails.

Roofing felt can be used to cover roofs, but it is not very durable and the wood underneath can rot before it is obvious that the felt is damaged. When roofing felt has been used, the felt can be painted with a heat reflective paint recommended by the felt manufacturer. Any holes or small tears can be repaired using a suitable mastic sealant. It is best to remove the whole covering if any part of the roof needs to be re-felted.

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It is important that new hives and beekeeping equipment remain in service for as long as possible to recover the initial cost and to provide a return on the investment. Hives normally require little maintenance. Regular treatment with preservatives and finishes will help to ensure that your hives are good for use over many years, even a lifetime.

Hives that are dry inside and well ventilated provide the honey bee colony with the best conditions in which to develop and prosper.

Hive timber that has become porous through age and weathering will absorb water. This reduces its thermal insulation properties. Evaporation of this water by wind will cool the hive markedly. Cold hive walls cause condensation and dampness inside the hive. Damp is considered to be a significant danger to the health of bee colonies.

Fungal attack occurs in the UK when the moisture content of wood exceeds 22% for a period of time. It will be aided if the hive timber has non-durable sapwood or a low durability heartwood. Woodworm can be established if the hive components are left undisturbed for years.

The object of this leaflet is to indicate means by which hives can be protected against rot; there are **five** basic considerations:

1. Use durable species of timber in the construction.
2. Build the equipment to a good design and construct it well.
3. Use hive stands to keep hives out of contact with the ground.
4. Use a wood preservative treatment.
5. Allow moisture to escape and prevent further ingress by using moisture vapour permeable or non-film forming exterior water-repellent treatment.

1. Choice of Timber

Western Red Cedar is usually the preferred material for the construction of beehives but is expensive. It is stable out of doors, it is light in weight and has some natural resistance to decay and insect attack. Hives can be constructed from softwood, preferably redwood (Scots pine). Whitewood (a knotting compound if a paint finish is to be used).

Water-resistant, exterior grade plywood can be used, but take care when cutting it to avoid splintered edges. Hives made from plywood will be heavier than Red Cedar. Plywood has little absorbency for preservative treatments. Do not use blockboard or MDF since these materials lack exterior durability. Spruce and larch are best avoided, as they are less durable and not as receptive to preservative treatment. Hardwoods such as oak are rarely used. They are more difficult to work, usually heavier, and are expensive.

Whichever kind of timber is selected it should be straight grained and knot free as far as possible. If it contains sapwood it will require protection to prevent decay. Knots should be sealed with

Pressure treated timber can be bought from timber merchants or DIY centres: but check the treatment chemicals used are not harmful to bees (insecticidal). Since pressure treatment does not always reach the centre of large pieces of timber, untreated parts may be exposed when cutting to size. Cut ends and joints should therefore, always be treated with a preservative. (See 4. below.)

2. Equipment design

Hives should be made to recognised designs such as a Modified National, Commercial, Langstroth or Smith. Well made joints and the use of waterproof glues will help stop moisture penetrating the timbers.

When assembling or repairing hives using nails, use only galvanised or sheradised nails. Screws are often better than nails in preventing the wood from warping at vulnerable joints. Bee equipment suppliers sell hives as flat-pack kits. Always follow the instructions and use waterproof glue to ensure strong and durable joints.

3. Using hive stands

Single walled hives, such as the Modified National, should be stood on hive stands well clear of the ground. In this way the floorboards remain dry and there is good air circulation under the hive.

Hive stands can be permanent structures or moveable with the hives. They can be made from pressure treated wood or metal frames or porous building blocks. Ensure that the hive stand is large enough to support the whole hive. A narrow stand can put unnecessary strain on the floor and may cause the hive to collapse.

It is as well to place the hive stand onto a paving slab to ensure a flat and stable base for the hive.

4. Choice of preservative

For use in the UK, any product which claims to protect timber against biological agencies such as fungi or insect attack, has to be cleared for use under the Control of Pesticides Regulations. Before purchasing any wood preservative product you should:

- Check the label for the HSE number, which indicates official approval regarding the safety of the chemicals for use by the general public.
- Read the label carefully to be certain that the product is **NOT HARMFUL TO BEES** and does not contain an **INSECTICIDE**.

Do not use a harmful product under any circumstance, as it will be impossible to remove it from the wood later.

There is a wide range of wood preservative products available but at present the only manufacturer known to make specific tests on their products for the preservative treatment of beehives is Cuprinol, part of ICI Paints. They have arranged for new formulations to be tested at the National Bee Unit. Following these tests, Cuprinol Garden Wood Preserver (DP) Red Cedar, Cuprinol Trade Decorative Wood Preserver (T), Red Cedar or Cuprinol Trade Low Odour Wood Preserver Clear (T), are recommended for use on beehives

However it is important that the hives are allowed to dry and air for at least two weeks after application .

If you have any queries or need further assistance, contact the Cuprinol Technical Advice Centre on 08704 441111. Website www.cuprinol.co.uk

Creosote was sometimes used in the past to treat hives, but is no longer considered safe for non-professional use and so has been banned from sale for DIY use.

Some beekeepers with a large number of hives treat hive parts by dipping into hot liquid paraffin wax. There is a high fire risk to this operation and the equipment is well beyond the needs of the majority of beekeepers.