

SBA Technical Data Sheet Number 8 - Detecting and monitoring Varroa Mites

Including instructions on the making and use of a Varroa Floor

NOTE

- The original source of the information given here is an article in The Scottish Beekeeper, 1998, Vol.75(2), pp33-36.
- The article has been modified and reproduced with permission of the Author, Mr. I Craig
- Any measurements given on the accompanying diagrams are Metric.
- The plans given here are appropriate for a single walled hive, and the overall dimensions should be modified to suit the hive type (see the detailed plans for the particular hive which you are using if you are not sure of the dimensions). See the accompanying instructions on use for how to modify for a double walled hive.

Equipment

Tools - hand (power tools optional)

Consumables

- Timber - Any softwoods are suitable provided the timber is well seasoned, sound, and free from large knots and rot.
- Wood Preservative - Colourless and odourless types, free from insecticide, are suitable. Cedar requires no preservative.
- Nails - assorted sizes
- Metal Mesh, epoxy coated - available from bee appliance manufacturers and suppliers

Method of Preparation

All wood should be cut and planed to size before trial fitting together. It may be advisable to pre-drill nail holes depending on the timber being used, if it is inclined to split. Exterior grade glue, though not absolutely essential, may be used to strengthen joints if desired. Preservative should be allowed to dry thoroughly before bees are introduced to the equipment.

Method of Construction - details

Please see the following instructions and figures from the original article in the Information Sheet Appendix. These give details of the construction and use of the floor.

Health and Safety Information

The following hazards are identified:

Danger or personal injury from:

- Hand tools
- Power tools
- Hammer and nails

Precautions:

- Protective overall and gloves

Goggles

DISCLAIMER: - Great care has been taken in the preparation of this technical sheet to ensure accuracy but the Scottish Beekeepers' Association cannot accept liability or responsibility. Beekeepers must therefore use the information at their own discretion and risk.

Acknowledgements

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APPENDIX

This appendix contains the text and illustrations from the original article as it appeared in the Scottish Beekeeper.

A nice workshop project is to make a number of VARROA FLOORS, at least one for every three hives. Figures 1 and 2 (following pages) show the design of the ones which I have made. They are of strong construction and can remain on the hive, between the brood chamber and the floorboard throughout the year. Although, in some parts of England, wax moths are breeding in the drawer where the bees cannot gain access to them. The epoxy coated metal mesh and the PVC sheet can be purchased from at least one of the major beekeeping suppliers. Make sure that you use METAL mesh. Fabric meshes have proved to be unsatisfactory.

The method of using the Varroa Floor is to reverse the original floorboard and place the Varroa Floor on top. The bees then fly from the new entrance, see Fig. 2. The old entrance, which is now at the rear of the hive, is used to accommodate the drawer which can be pulled out without disturbing the bees. A sheet of paper, smeared with vaseline, grease or oil, is laid in the drawer to catch the fallen mites. The purpose of the grease is to prevent any live mites from re-entering the brood chamber. A cleaner, very effective, but more expensive method is to use a 'fablon' insert.

The Varroa Floor design illustrated, although better suited to single walled hives, can also be used for double walled hives. In the latter case, the outer hive lifts have to be removed in order to gain access to the drawer or a flap can be cut and hinged at the rear of the bottom lift.

There are three methods of detecting Varroa mites which I would recommend:

- Uncapping drone brood;
- Natural mite drop;
- Induce mite drop.

1. Uncapping drone brood is only useful during the active season. The Varroa Floor is not required. A female mite in a worker cell has a 94% chance of successfully producing one young female, a 38% chance of two and a 13% chance of three; whereas in a drone cell she has a 98% chance of producing one young female, a 94% chance of two, and 84% chance of three, a 76% chance of four and a 63% chance of five. This is because drone pupae take three days longer to emerge than

worker. Varroa are said to have a preference for drone brood, if it is available, but they breed in large numbers in worker brood also.

Use a honey uncapping fork to uncap, say, one hundred drone cells. If 5% are infested this is tolerable, if 25% are infested there could be a danger of colony collapse.

2. Natural mite drop:

(i) Send floor scrapings to SASA in early spring, before the bees have had an opportunity to spring clean. All beekeepers are recommended to do this but should be aware that a light Varroa infestation could easily remain undetected. Please make use of this FREE service provided by SASA, whose address is:

Mrs Fiona Highet, SASA, 1 Roddinglaw Road, Edinburgh EH12 9FJ. Mark the package clearly 'Bee Diseases'.

(ii) Use a Varroa Floor at any time of year.

Natural mite drop / day - Infestation level

<1 = low

1-10 = acceptable

11-30 = approaching tolerance threshold

> 30 = liable to collapse

In order to find the daily mite drop, check the mite drop/week and divide by seven.

The above figures are arbitrary, there are many variables, some colonies are more mite-tolerant than others.

3. Induced mite drop:

This is the most reliable method of detection. Use a Varroa Floor. Insert four Bayvarol strips into the brood chamber, leave for 24-48 hours. Check the floor insert yourself or send it to SASA. If you are sending the insert to SASA, I would recommend that you use the 'fablon' version. Simply peel off the protective covering before insertion, retain the cover, then replace it on top of the sample before posting.

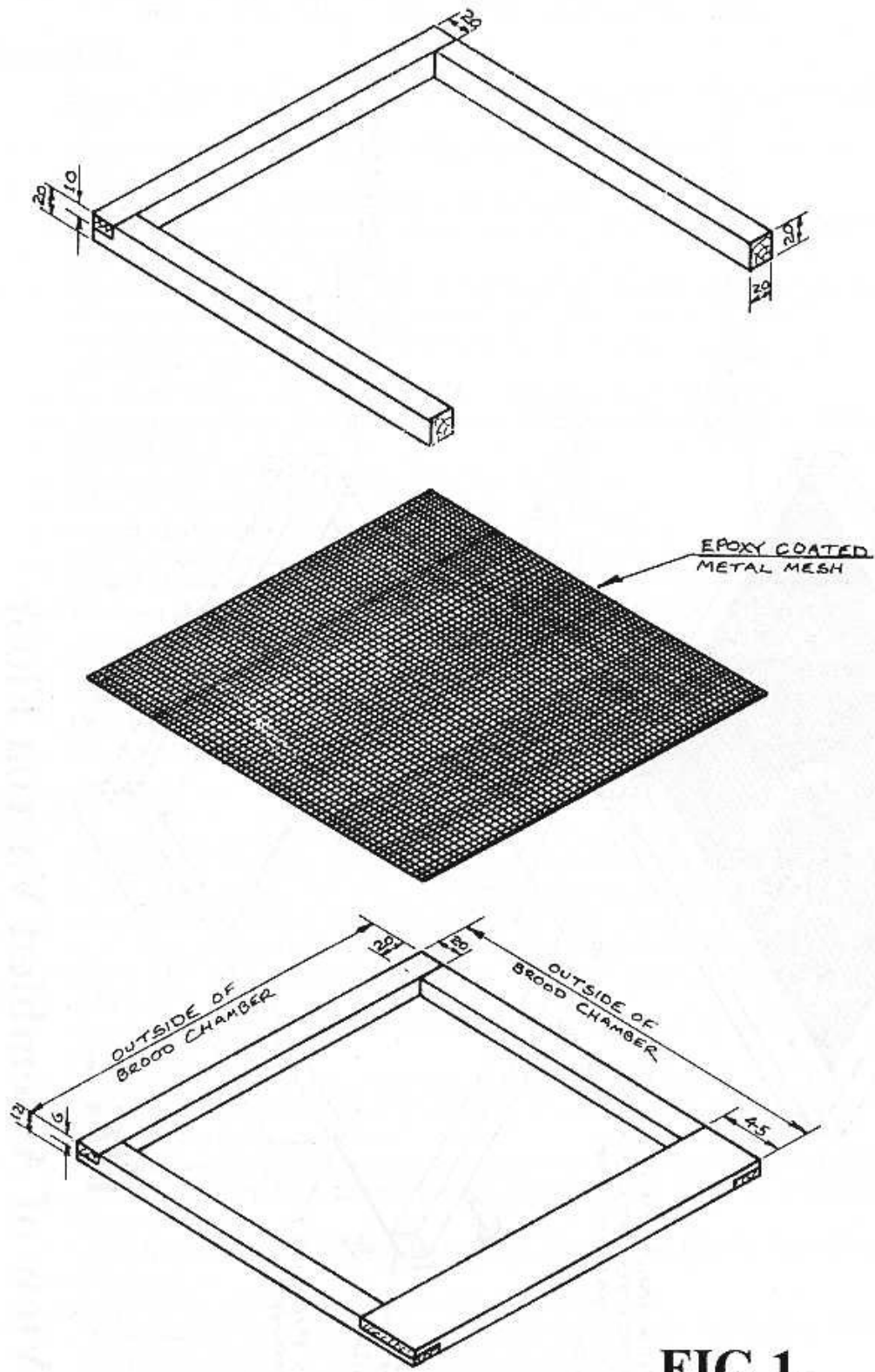


FIG 1.

Exploded View of Varroa Floor

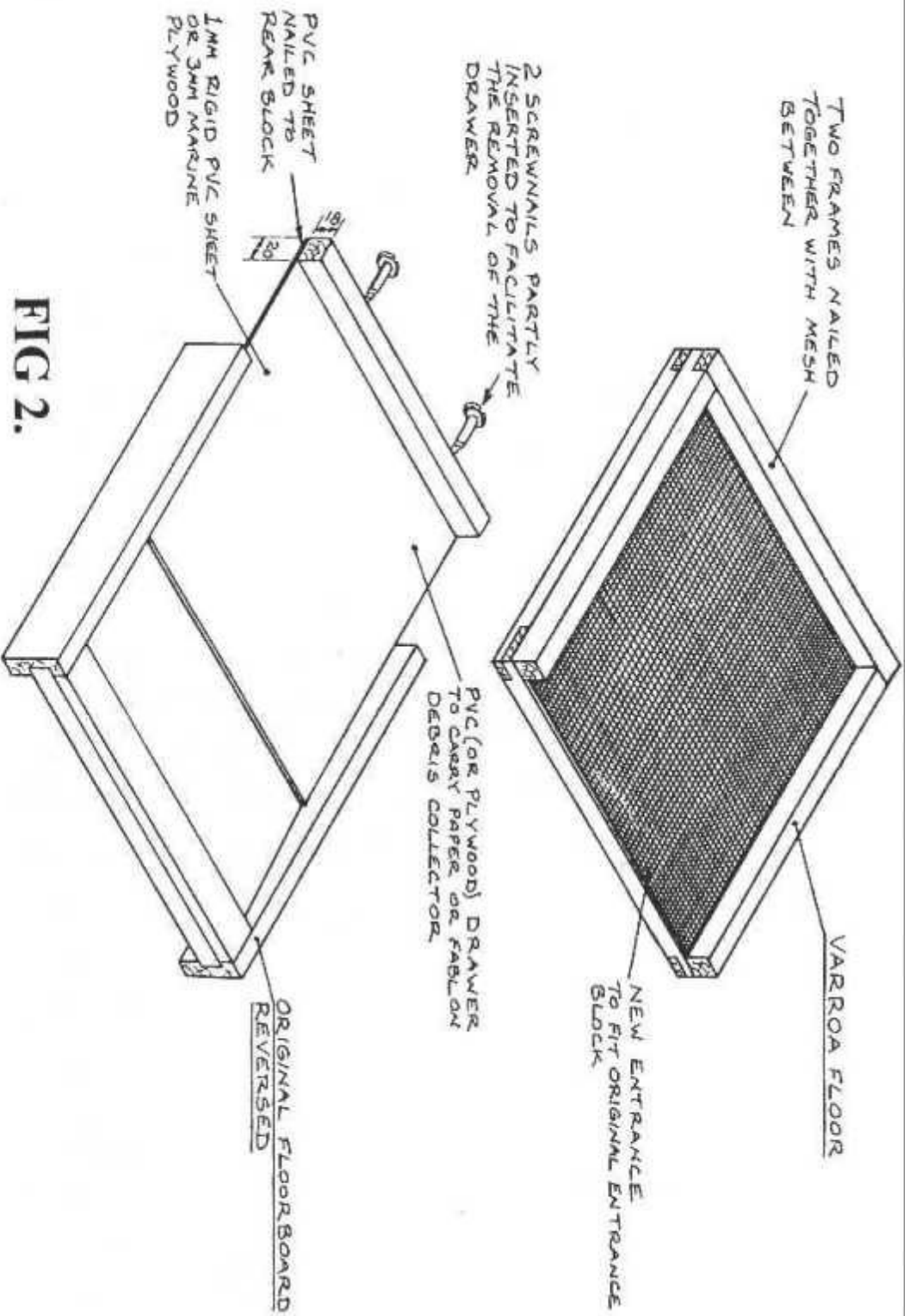


FIG. 2.

**View of Assembled Varroa Floor
and
Original Floorboard**