



Frames of bees (FOB)

This is the first hive-grading measurement that should be taken. After initially gently smoking the colony, (let's assume it is two deeps), hinge the top box up and gauge how many full frames of bees are in the bottom box from the appearance of the top-bars and how many full frames of bees are in the top box from the appearance of the bottom-bars (**Figures 5 and 6**). One may adjust their **FOB** estimate as they work the colony.

If estimating the FOBs in a box that is a different size than a deep, convert the frames of bees in the box so it is equivalent to the FOBs in a deep. For example, if counting FOBs in a medium box, each frame is about 2/3 the size of a deep frame. If you count 6 FOBs in the medium box, adjust to 4 deep FOBs.



Figure 5. Estimating frames of bees by looking down into the box in between the tops of the frames. Look to see how completely the bees are covering the frames from end to end, how deep down the bees look, and how crowded the bees look. In this box, you can see that the bees look like they are in a circle, with the densest part in the middle. You need to count how many frames are totally full with bees, and then subtract the parts with no bees. There are 9 total frames, with about 7 totally covered in bees and the outer 2 partially covered. In this case each of the outer 2 frames is counted as a half. This box has 8 frames of bees.



Figure 6. By only looking at the top of the frames, you cannot tell if the bees go all the way to the bottom of the frames and you may overestimate the frames of bees. Tipping up the box shows you if the frames are really full with bees or if the bees don't go all the way to the bottom of the frames. Counting both the top and bottom of frames gives a much better estimate of the actual frames of bees. The top image (a.) has about 5.5 frames of bees and the below image (b.) has approximately 1.5 frames of bees. Bees cluster differently depending on temperature, so on hot days the bees will be more spread out, making it look like there are more frames of bees. They will also do this right after a mite treatment.



Brood pattern

Brood pattern ranges from 1-5, 1 being the poorest/most spotty and 5 being the most solid or with the fewest open cells. Often a rating of 1 indicates a brood disease or queen issue. A rating of 5 is not always the ideal for breeding, since bees that are hygienic will remove sick brood sometimes giving the brood pattern a lower rating due to more missing cells. Below, are three photos showing brood patterns rated 1, 3, and 5 (**Figure 7**). If a pattern is in-between a 1 and 3, then rate the pattern as a 2. If the pattern is between a 3 and a 5, rate the pattern a 4. If more precise measurements of brood pattern are needed, use a square of 10 by 10 cells and count missing cells as described in Delaplane et al. 2012. If there is no brood pattern to judge, then give the colony a 0 or write N/A.



Figure 7. This picture shows a spotty brood pattern that scores as a 1.



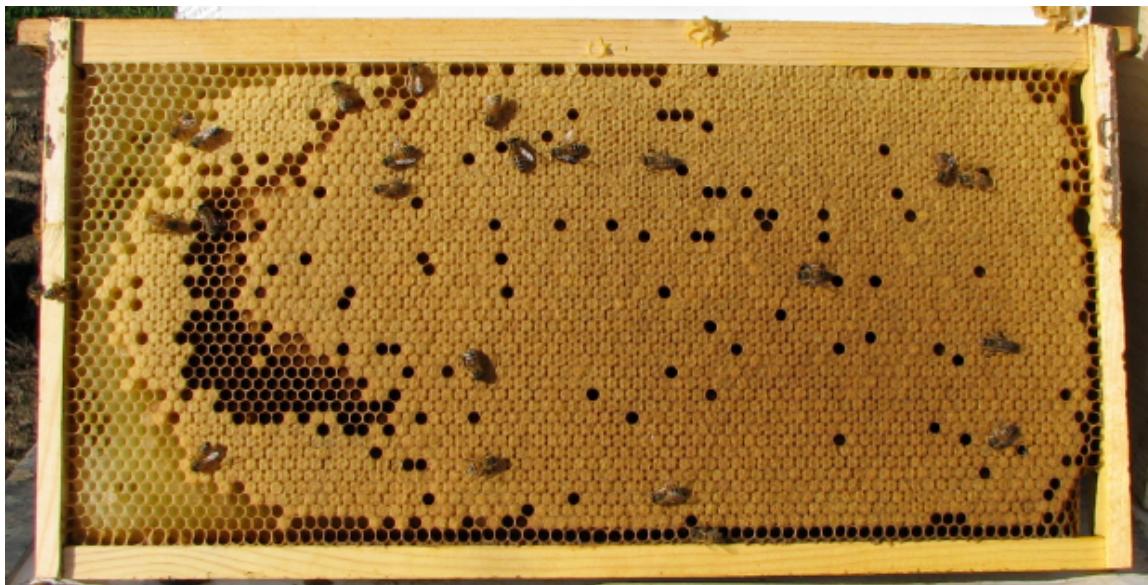


Figure 7. Ratings of different brood patterns: the topmost picture shows a spotty brood pattern that scores as a 1; the middle picture shows a brood pattern that scores as a 3; and the bottom picture is a solid brood pattern that scores as a 5.