

Scoring guide

Colony score. After measuring VSH in a colony, one needs to convert that information into a breeding score that measures VSH on a scale of zero to four. The score estimates the level of VSH in worker progeny. We call it the colony score. A score of zero suggests that the bees have none of the VSH alleles, and a score of 4 suggests that they have all of them. Scores of 1, 2, and 3 are intermediate increments.

The colony score is permanently assigned to the queen because it will be the colony score wherever that queen is producing brood, but it is not the queen score. From a queen's perspective, it is her progeny score. When selecting a colony to graft from, pick one with a high colony score.

Queen score. Queen scores are derived from colony scores. Queens produced from a scored colony are sisters to the workers, so the colony score becomes the queen score for those daughter queens.

Drone score. Drones are given the same score as their mother, so when selecting a colony to serve as a drone source, pick one with a high queen score. Drone source colonies only need a queen score. It doesn't matter who the queen was mated to or what the colony score is.

Conversion Table. Convert an evaluation of mites in worker brood to a VSH colony score

Percent of infested worker cells with nonreproducing mites (NR) ¹	If only reproducing mites or no mites are found ²	Score
80 - 100% nonreproducing)	0/200 (no mites found in 200 cells examined)	4
50 - 80% NR	0/100 or 1/200	3
30 - 50% NR	1 or 2/100	2
20 - 30% NR	3 or 4/100	1
Less than 20% NR	5 or more/100	0

Table footnotes

¹ Examine brood cells that are at least 7 days post-capping (the worker bee in the pupal stage should be purple eyed or older). This ensures that you are measuring VSH after the brief window in time (4-6 days post-capping) when the removal of varroa-infested cells occurs. Column one is preferred because finding a high frequency of nonreproducing mites is a good indication of VSH. Simply finding no mites is good but could have causes other than VSH.

² If you find no infested cells or none with nonreproducing mites, use the second column. On the practical side, if you find only cells with reproductive mites and tally 5 before you examine 100 cells, you can score that colony as a zero and quit counting.

Record keeping. When keeping records, a mated queen carries as many as 3 VSH scores as long as she lives; her score (q), the score of the drones she was mated to (d), and her colony score (c). We write them as q(d)c, mother(father)daughter. In the example 3(*)2, her score is 3, the sperm in her spermatheca came from unknown or unscored queen, and her colony score is 2.