

Philcrafthivecraft.com Beekeeping Information Sheet

Varroa mite sampling: How to conduct an alcohol wash July2015

RE: Sampling for varroa & threshold numbers

There are three procedures commonly used to monitor for varroa: alcohol washes, powdered sugar rolls, and sticky boards. The alcohol wash is considered the most effective, and is the method of choice of most inspectors, researchers, and commercial beekeepers. It is also the one I recommend. It is a destructive test, meaning that it involves killing the bees in the sample, therefore it's vital to locate your queen to make sure that she is not among the bees collected. It's also important to take a large enough sample - between 200 and 300 bees. One half cup contains about 300 bees.

Equipment needed for conducting an alcohol wash



- Plastic pan
- ½ cup or similar measuring device
- Quart jar
- White bucket or pan
- Alcohol
- Sieve

Directions for conducting an alcohol wash:

- Shake bees from two brood frames into a bucket or pan, making sure that your queen is not among them.



- Scoop up 1/2 cup of bees and dump them into a jar - a wide mouth quart fruit jar works well - which contains enough alcohol to submerge all of the bees. Soapy water can also be used, but I prefer alcohol.



- Put a lid on the jar, and shake it for 1 to 2 minutes.
- Place a sieve over a small white plastic bucket, and pour the bees and alcohol into the sieve. The shaking dislodges the mites from the bees, and they end up with the alcohol in in the bucket. Brown mites are clearly visible in a white bucket.



- Repeat the wash by moving the dead bees from the sieve to the jar, adding more alcohol, shaking, and dumping them into the sieve again. Some experts suggest repeating this step until no additional mites are seen in the alcohol under the sieve, but definitely do it at least one more time.
- Count the mites in the liquid, and the bees in the sieve (or rely on the number per ½ cup estimate).

Many beekeepers make use of the approximate equivalence 300 bees to ½ cup volume, but I suggest doing an actual count, at least the first couple of times that you conduct an alcohol wash, in order to get a feel for what that many bees looks like. To convert the raw numbers into useful information, divide the number of mites by the number of bees and multiply by 100. For example, 6 mites out of a sample of 270 bees would be $6/270 = 0.022$ and $0.022 \times 100 = 2.2$, which represents the number of mites per 100 bees. That number is compared to a recommended threshold, the number at or over which intervention (meaning chemical treatment) is required lest the colony decline and eventually suffer high bee mortality. Thresholds are not constants. In recent years, due to increased colony loss, they have become more conservative, meaning revised downward. They also change with the seasons. Spring to early summer is a time of maximum brood production in honey bee colonies, and therefore an ideal time for the population of varroa mites, which reproduce in brood cells, to increase rapidly. Because varroa can get out of hand so quickly at that time of year, a lower threshold is used in the spring. The bottom line is that failure to monitor, and to control varroa when threshold numbers are exceeded, means an increased likelihood of a dead colony later in the season. It's best to monitor twice a year, in spring and fall. The following are the thresholds I recommend using for an alcohol wash sample. They are consistent with numbers suggested by many researchers.

- Spring: treat if more than 1 mites per 100
- Late summer – early fall: treat if more than 2 mites per 100