



Figure 6. The Holst Milk Test—a simple field technique for diagnosing AFB from dried scales. Put a tiny pinch of nonfat milk powder into a clear tube, add ½ tsp water, and then add one or two well-decomposed suspect larval remains (scale). Keep the tube at body temperature for 20 minutes, shaking occasionally. In the background is a typical comb from an AFB deadout. See [8] for additional details.

The Holst Milk Test

The enzyme is produced by the bacteria only when the larvae reach the ‘ropy’ stage or later, and persists in the dried ‘scale’—it won’t work with larvae at an earlier stage of disease. It is often easiest to simply rip out the entire bottom of the cell with forceps and drop it all into the tube. You can also drop in the twig that you use to test for ropiness. The more diseased larval remains you add, the quicker the reaction; however, if you use only a partial scale or a twig, then either use less solution, or dilute the milk even further.

The reaction can also be speeded up by warming the water to up to 165° F (as hot as you can hold your fingers in). I could get tubes of ½ tsp. of weak milk solution inoculated with a single scale to clear in less than 5 minutes by incubating them in a cup of hot water.

It is easiest to make up a field AFB test kit consisting of a pair of tweezers, a vial of milk powder, and some clear glass vials for running the tests. At home, you can use liquid milk (skim preferred) diluted 1:4, again at the ration of 1 scale per ½ tsp. of diluted milk. When first trying this test, I suggest that you run an uninoculated vial of milk solution side by side for comparison.

Note that the test is retarded if the combs have been stored with paradichlorobenzene for wax moth control.