



ALBERTA TECH TRANSFER
PROGRAM

VARROA MITE SAMPLING

Alcohol Wash Sampling to Monitor Infestation of *Varroa destructor* in Honey Bee Colonies

The parasitic *Varroa* mite, *Varroa destructor*, is an effective vector of several honey bee viruses and is currently the most serious pest threat to honey bees in Alberta. The prevalence of *Varroa*, specially when associated with viruses, is the leading cause of honey bee colony mortality. For this reason, *Varroa* management must be taken seriously and become a regular part of your honey bee management plan.

A good practice is to monitor a minimum of 10 colonies per apiary. Apiaries should be monitored every spring and fall.

What you will need:

1. Mite shaker/sampling jars
2. 70% Ethanol or winter windshield washer fluid
3. Small tray/tub (e.g. dishwashing tub)

STEP 1



Choosing a Frame

First you need to select a frame from the brood nest. Be sure to pick one that has a mixture of open larvae and capped brood. You are looking to sample nurse bees because they will have the greatest number of mites. Finally, before collecting the sample be sure the queen is not on the frame.

STEP 2

Collecting Bees

Take the tub and shake the frame hard enough so the bees fall into the tub and scoop out $\frac{1}{2}$ a cup of bees. You can also gently scrape a $\frac{1}{2}$ cup of bees right from the frame. Take the cup of bees and empty into the jar with $\frac{1}{3}$ of ethanol or winter washer fluid. Cap the jar with the screened lid in preparation for shaking.



STEP 3



Using the Mite Shaker

Take an empty jar and attach it to the other side of the screened lid. Proceed to shake the sample of bees for 2 minutes. Be sure to shake hard enough to dislodge the mites from the bees.

STEP 4

Counting the Mites

Flip the jars so that all the fluid flows into the jar without the bees. By holding up the jar and looking at the bottom you will be able to see and count the number of mites in the sample.



STEP 5



Calculate your Percent Infestation

In each $\frac{1}{2}$ cup sample there are approximately 300 bees. By dividing the number of mites observed by 3 you will get the number of mites per 100 bees. This is your percent infestation. Anything higher than 1% in the spring (1 mite/100 bees), and 3% in early fall (lots of brood present; 3 mites/100 bees) should be treated.

Standard Precautions for Varroa Sampling

1. Ensure no mites are present in mite shaker from previous tests
2. Make sure each colony is sampled separately
3. Be extremely careful handling ethanol or windshield washer fluid around a live colony