

“At the NBDC we are committed to provide excellent services and deliver results in an accurate, reliable and timely manner. This enables beekeepers and provincial apiculturists to take appropriate actions and apply treatments as required.”

Spring 2014

Overview: The NBDC offers diagnostic services for detection of the most common honey bee pathogens: AFB, EFB, Nosema, Varroa mites, Tracheal mites and Viruses. Depending on the beekeeper’s concern, samples may be taken *per apiary* or *per colony*. When the main interest is the overall apiary health, a composite sample of adult bees from 8 randomly selected colonies in each apiary will be required (we recommend 1 composite sample for up to 1,000 colonies). When a specific colony is the main concern, one sample of adult bees or comb from this colony will be required.

What to send

Types of sample can be submitted according to the disease suspected. We recommend:

SUSPECTED DISEASE	SAMPLE
American foulbrood (AFB)	A piece of comb containing diseased brood; or entire frame Adult bees from the brood frame
European foulbrood (EFB)	Comb sample containing diseased brood; or an entire frame
Nosema and Tracheal mites	Adult bees from the honey frame
Varroa mites	Adult bees from the brood frame
Viruses (DWV, BQCV, KBV, ABPV, IAPV, CBPV, SBV)	Live adult bees or diseased brood

Sampling approach

Samples may be taken per Apiary or per Colony.

Table 1: Sampling	
COLONY	APIARY*
Collect ONE sample of 100-300 adult bees from each colony that you sample One Full NBDC container = ~200 bees	Collect a sample of 80-100 adult bees from each of the EIGHT randomly selected colonies for each apiary that you sample One 1/2 NBDC container = ~100 bees

*Recommended: 1 composite sample for up to 1,000 colonies

Sampling procedure

Comb sample: Cut out a piece of the brood comb about 10 cm x 10 cm containing the suspected diseased brood (Fig. 1). Wrap the sample in paper towels or newsprint and send it packaged loosely in a cardboard box.

Avoid honey, pollen or nectar in the sample and do NOT put samples in a plastic or airtight container. If feasible send one full frame with eggs and larvae at multiple stages.



Figure 1: A 10 x 10 cm piece of the comb containing diseased brood or an

Adult bees: You can use 30 dram vials (~120mL). The NBDC will provide sample containers upon request. Similar containers can be purchased at local stores (e.g. urine sample container or plastic honey jars).

- **Collection per Colony:** Open a colony, remove a frame and collect a sample of 100-300 adult bees (Fig 2). Container (30 dram) must be filled up to the top with bees.
- **Collection per Apiary:** Open 8 randomly selected hives, remove a frame and collect 80-100 adult bees from each colony (Fig. 2) Samples will be composited in the NBDC, therefore samples must be sent in the individual containers.



FIGURE 2—Sample collection from a frame. Container (30 dram vial) filled with bees.

Live adult bees (for viral analysis): Open a hive, remove a frame and collect 100 adult bees. You can use 30 dram vials (~120mL) to collect bees. You can use a live bee shipping box (Fig .3)or use a plastic vial (~120mL) and add a queen candy or a sugar cube. If using a plastic vial, ensure container is aerated by making a few holes on the lid or on side of the container. Bees must be shipped alive in order to preserve RNA integrity.

Label — Containers must indicate:

- Beekeeper’s name;
 - Colony ID, if a composite sample write Apiary ID;
 - Date of sample collection;
 - Type of sample (e.g. honey frame; brood frame, etc.)
- * Use permanent marker to write down information

Storage

Store containers in a –20°C freezer until samples are ready to be submitted.

When Viral Analysis is requested, live bees must be sent to the NBDC. Drop off box with live bees at the nearest post office as soon as possible.



FIGURE 3— Box for live bees.

It is recommended to examine frames of the entire colony to find the queen before taken any samples. This will ensure that the queen will not end up in the sample container.

Package preparation

- Complete submission form and label mailing box;
 - Take samples out of the freezer. Check whether vials containing bees are properly closed and place them in the mailing box (if possible send samples with ice packs).
- Include submission form with samples.**
- Ensure boxes containing live bees are properly closed.
 - Packages must be prepared safe and secure to prevent breakage, leakage or escape of live bees during transport. Make packages tight by filling up spaces between containers with paper. Mailing box must be well closed and sealed with adhesive tape.
 - Submit samples to the NBDC immediately.

Shipment

Submit samples by Canada Post using *Express* or *Priority* service. Samples must be shipped between Monday and Tuesday, so they do not arrive at the NBDC on the weekend when there is no one available to receive them.

Contact the NBDC by phone or email within 24 hours of shipment to notify that samples are expected.

Samples can also be dropped off in our office.

Results

Results will be available within two weeks of sample receipt in the lab.

Submit samples to:

National Bee Diagnostic Centre

P.O. Box 1118
 1 Research Road
 Beaverlodge, AB T0H 0C0
 Phone: 1-780-357-7737
 Fax: 1-780-354-8080
 Email: NBDC@gprc.ab.ca
 Web: www.thenbdc.ca



FEEES AND SERVICES -Spring 2014

SERVICES	FEE	# of Bees /Individual Service *
Nosema count	\$15	120
Varroa mites count	\$15	300
Tracheal mite detection	\$20	100
Nosema species identification	\$25	120
AFB detection	\$25	120
EFB detection	\$25	120
Chalk brood detection	\$25	100
AFB detection & Antibiotic Resistance	\$45	250
Virus detection -each-	\$40	100
Virus detection—3 viruses	\$100	100
Virus detection—5 viruses	\$160	100
Virus detection—7 viruses	\$220	100

- ◆ * The recommended number of bees per individual service. If you are sampling with the intent to request several services, a minimum of 400 bees is recommended.
- ◆ For any Viral Analysis send live bees. You can use a live bee shipping box or use a plastic vial (~120mL) and add a queen candy or a sugar cube. If using a plastic vial, ensure container is aerated by making a few holes on the lid or on side of the container.

PLEASE NOTE WE HAVE DISCONTINUED THE FULL SPECTRUM ANALYSIS

List of Viruses

- Black Queen Cells Virus (BQCV)
- Kashmir Bee Virus (KBV)
- Acute Bee Paralysis Virus (ABPV)
- Deformed Wing Virus (DWW)
- Chronic Bee Paralysis Virus (CBPV)
- Sacbrood Virus (SBV)
- Israeli Acute Paralysis Virus (IAPV)

Payment Options:

Customers will be invoiced directly by Grande Prairie Regional College. Please contact the GPRC for payment options at: Grande Prairie Regional College Financial Services Attention: Accounts Payable 10726 -106 Avenue Grande Prairie, AB T8V 4C4 780-539-2026

