

**Bee Alert Technology, Inc.; BVS, Inc., and  
The University of Montana**

**March 28, 2007**

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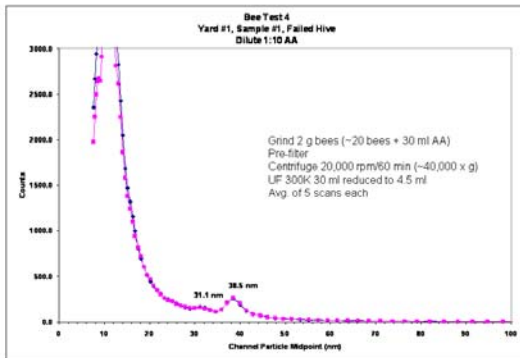
**EMERGENT CHEM/BIO-DETECTION TECHNOLOGIES AND CCD:**

**Chemical and Biological Analyses; Bee Alert, The University of MT, and BVS, Inc.:**

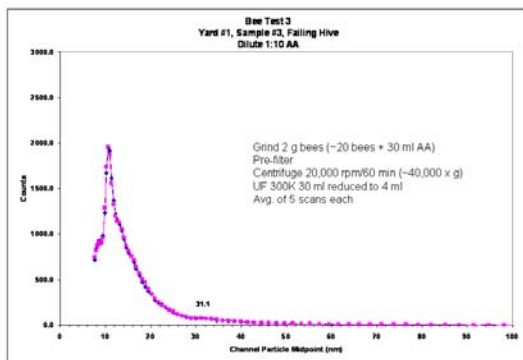
Last week, Dr. Garon Smith, at UM, completed analysis of hive atmosphere samples from CA bee colonies and is currently comparing them to the FI samples. In addition, we (Bee Alert) have recently begun to collaborate with David Wick of Biological Virus Detection, Inc. (BVS) in Stevensville, MT (<http://www.bvs-inc.us>). Like Bee Alert, BVS partners with the University of Montana and has a good working relationship with U.S. Army laboratories.

Using samples supplied by Bee Alert, BVS provided analysis results for unknown, viable viruses in bees from a CCD beeyard in Florida. The three slides (Figure 1) depict the results for the best colony in the yard, a failing colony (40-60% initial population size), and a mostly failed colony (some bees remaining).

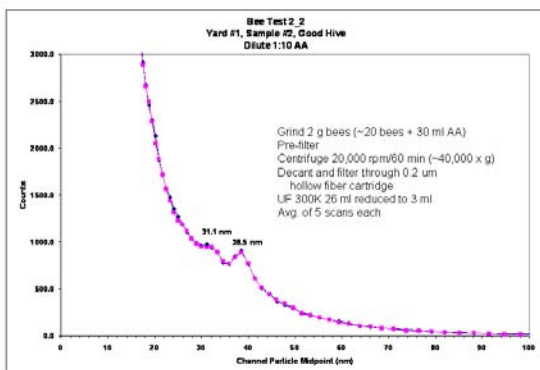
## IVDS Bee Tests



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**Figure 1.** Virus detection in Florida CCD colonies. Two viruses were detected, with somewhat higher amounts of virus in the best (good) colony.

The virus results are very preliminary. They are useful in several ways:

- The process used to detect the viruses is borrowed from a new method used for veterinary studies, but obviously works for bees,
- The method detected two viruses, and only two viruses, not lots of different viruses as suggested by some other researchers,
- The technology provides a definitive negative, indicating that there are no other viruses in the sample,
- There was a gradient of virus concentrations from best to worst colony, and
- The somewhat elevated levels of virus in the good hive may be a reflection of the presence of a higher percentage of older bees in the non-collapsed colony.

Although very preliminary, the results indicate that the method used by BVS is rapid, inexpensive, and has potential as a preliminary screen for unknown viruses. Currently, more bee samples are being processed. The laboratory has the ability to look at viruses, a broad array of chemical moieties, and to integrate all this information with honey bee genomic work.

Ongoing work will next examine bee samples from Australia. If the Australian bees have the same two viruses, then these are probably something that can act as a biomarker for viruses that may be more or less widely distributed in bee colonies around the world. If the Australian bees don't have these viruses, then they need to be more closely investigated, since CCD is not known to occur in Australia. And, if the Australian bees have any new, unknown viruses, brought with them from their country of origin, BVS would be able to detect them.