

Understanding the emergence and disease dynamics of Chronic bee paralysis in England and Wales

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Chronic bee paralysis is a serious disease of adult honey bees caused by an unclassified RNA virus known as chronic bee paralysis virus (CBPV). Individual honey bees suffering disease show characteristic shivering and shaking symptoms followed by paralysis and death. Colonies appear to transition very rapidly from being apparently healthy, to presenting with piles of thousands of dead bees outside the colony, which is contrary to conventional epidemiological understanding. Here we report an update on the patterns of emergence across England and Wales using data from a national honey bee health database known as BeeBase. We also report on field trials that monitored the build-up of disease across three apiaries over a three-month period. We demonstrate that the virus is present in dead bees up to two months before colony level symptoms are visible. Finally, we investigate virus sequence similarities within and across outbreaks, as well as highlighting which genotype is causing disease across England and Wales. Overall our findings provide new evidence to inform our epidemiological understanding of this damaging emerging disease.