



The effect of caffeine on the epidemiology of *Nosema bombi* a detrimental bumblebee parasite

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Understanding disease epidemiology is fundamental to elucidating the true impact of a parasite on its host. Bumblebees are key global pollinators, but are susceptible to a number of unicellular parasites that can impact on their health. One such parasite, the microsporidian *Nosema bombi*, has been associated with declines in a number of North American bumblebee species. Previous work has shown how individual bees may become infected with *N. bombi* and how the infection may then transmit to conspecifics. Here, we provide the first detailed analysis of the intra-colony epidemiology of *N. bombi*. We then address how ecologically relevant levels of the phytochemical caffeine, found in the nectar of plants that bumblebees are known to forage on, impacts the epidemiology of *N. bombi*. Our results suggest that determining the chemical profile of forage plants is key to understanding how landscapes can impact on disease epidemiology in an important pollinator.