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The influence of *Bacillus thuringiensis* on baculovirus transmission dynamics in the cabbage moth, *Mamestra brassicae*.

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Baculoviruses can be combined with other entomopathogens to achieve improved biological control of insect pests. Understanding the population ecology of interacting pathogens and specifically the transmission dynamics in pathogen combinations will assist in predicting the outcome of integrated biological control strategies. We tested the hypothesis that the presence of *Bacillus thuringiensis* subsp. *kurstaki* (*Btk*) in manipulated cabbage moth (*Mamestra brassicae*) field populations would affect the transmission dynamics of *Panolis flammea* nucleopolyhedrovirus (*Pafl*NPV). The combination of spraying *Btk* with *Pafl*NPV resulted in first generation larvae being more likely to be infected with virus when *Btk* was present. The acquisition of baculovirus infection as exposure time increased was found to be highly non-linear. In the presence of *Btk* the number of insects that were able to escape NPV infection was reduced through a combination of changes in host feeding behaviour and delay in onset of host developmental resistance. Viral cadavers in the presence of *Btk* produced significantly lower viral yields compared to those in the absence of *Btk*. When second generation larvae were exposed to these viral cadavers *in situ*, there were significant reductions in subsequent viral mortality. The impact of these results for season long Lepidoptera control are discussed.