

Flying insects and *Campylobacter*

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Abstract

Campylobacter in flies Flies of the *Muscidae* family forage on all kind of faeces – various fly species have different preferences. *M. domestica* prefer pigs, horses and cattle faeces, animals which are all known to frequently excrete *Campylobacter*. As a result, the insects pick up pathogenic micro organisms, which may collect on their bodies or survive passage through the fly gut. *Campylobacter* and other pathogens are then easily transferred to other surfaces, for instance peoples food – or to broiler houses where they may be swallowed by chickens or contaminate the environment. On a large material of several species of flies collected outside broiler houses, merely ~1% of the flies were found *Campylobacter* positive. However, the prevalence varied considerably with fly species, time of the year, and availability of *Campylobacter* sources.

Influx of flies to broiler houses As the influx of flies to broiler houses may be counted in thousands per broiler rotation during summer periods, even a low prevalence of *Campylobacter* positive flies constitute a risk of introduction of *Campylobacter* to the chickens. *M. domestica* – the house fly is the most important vector fly for *Campylobacter* transmission according to our results.

Fly control on broiler farms gainst *Campylobacter* To evaluate the effect of fly screens as a preventive measure against *Campylobacter* introduction, we have conducted a case-control study. In fly screened houses, the *Campylobacter* prevalence was reduced from ~50 % to 15% at slaughter. The statistical analysis identified the fly screen as the significant protective factor.

Length of the vector period of house flies for *Campylobacter*. It would be of interest to know, for how long swallowed *Campylobacter* survive in the fly gut, or even colonize the intestine. According to our findings the vector period was rather short, as even high doses of *Campylobacter* remained viable for less than 24 hours in flies, when they were incubated at temperatures from 20 °C and higher. Lower temperatures are less- or irrelevant, as flies become slow or immobile below 15-20 °C.