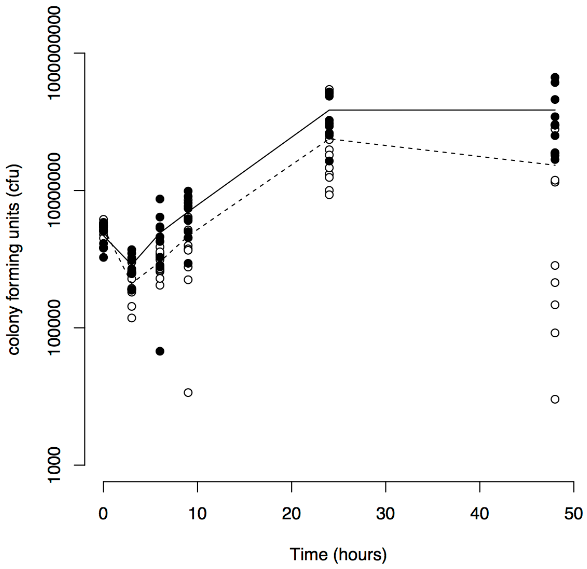

Figure S1. Growth of the wild-type and *agr* mutant over time. This includes the 48 h data point shown in Fig. 1a. We grew the wild-type(●) and *agr* mutant(○) in waxmoths for 48 h, in single and mixed infections. When grown as monocultures in hosts, the QS wild-type grew to higher densities than the *agr* mutant, suggesting a benefit of QS at the group level. Mean ± S.E. 60 worms per group and 10 worms were sacrificed at each time point.

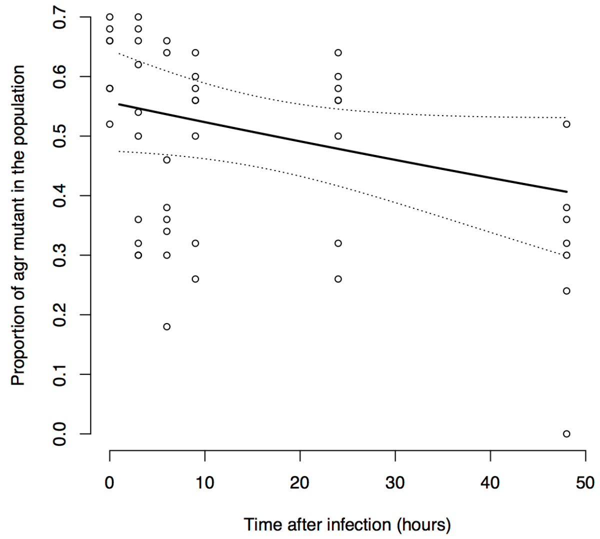

Figure S2. *agr* mutants do not invade wild type populations when starting from high frequency. 60 waxmoths per treatment group were injected with a high starting frequency of *agr* mutant (64.5%). At 6 separate time points, 10 worms were sacrificed and the proportion of *agr* mutants determined. Each point on the graph represents a single worm. Regression lines are shown in black and 95% confidence intervals are shown with dotted lines.

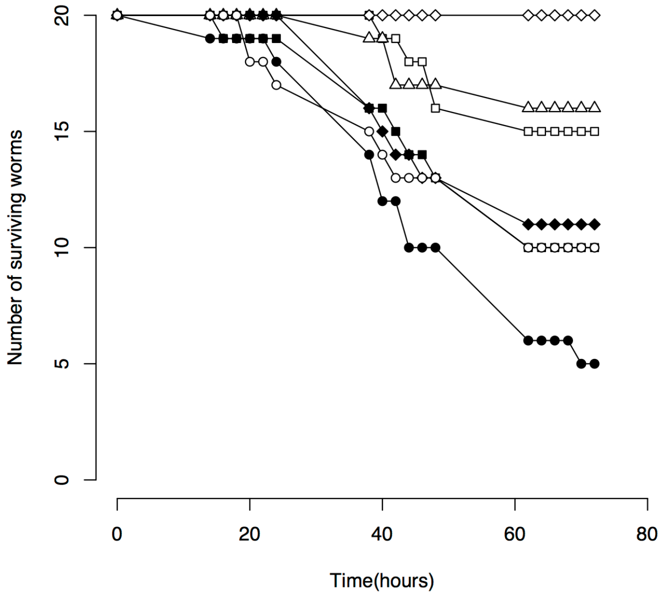

Figure S3. QS and virulence. The survival curves for *Galleria* infected with either the RN6390B wild type (●), the *agr* mutant (□), 96%Δ*agr* (Δ), 78.3%Δ*agr* (■), 22.5%Δ*agr* (○), 4.5%Δ*agr* (♦), PBS control (◊).

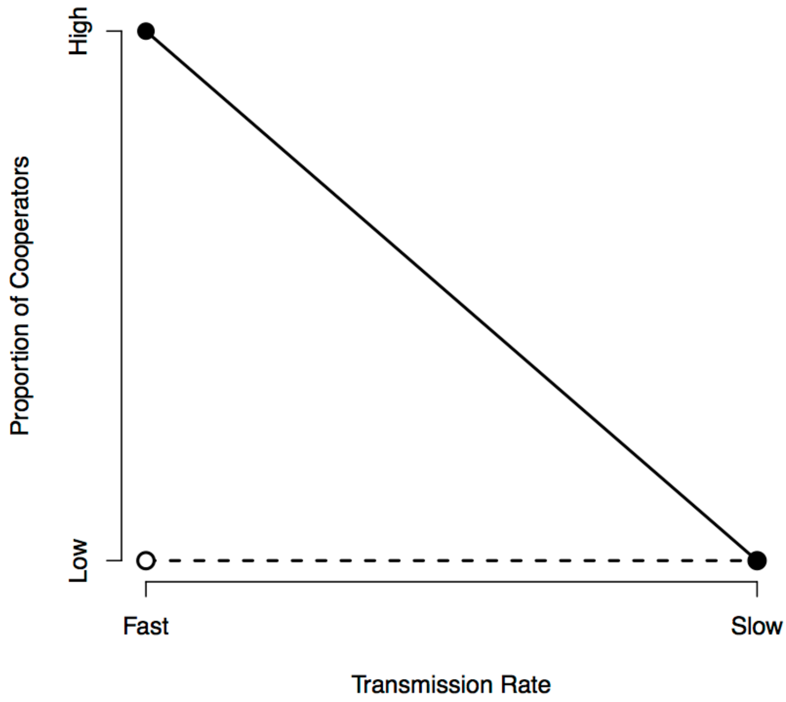

Figure S4. Hypothesised relationship between cooperation, transmission speed and population structure in a virulence model. The solid line (closed circles) shows cooperation in high relatedness (r = 1) populations whilst the dashed line (open circles) shows cooperation in low relatedness populations (r < 1). Selection for cooperation is hypothesised to be common only under conditions of low host mortality (fast transmission) and high relatedness.

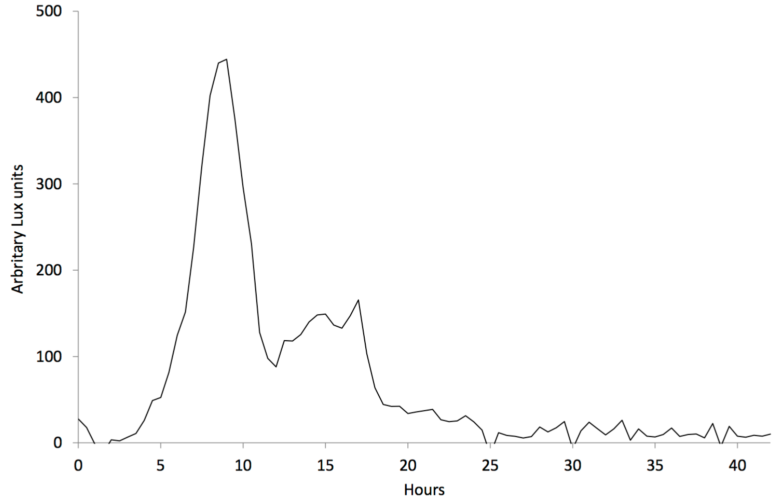

Figure S5. Expression of *agr*-dependent QS in *Galleria mellonella*. An RN6390B *agr* reporter strain was inoculated into waxmoth larvae and light produced by the *lux agr* reporter was recorded by a TECAN plate reader every 30 minutes. The data presented represents the mean *lux* activity of the reporter strain in the 20 waxmoth larvae used.