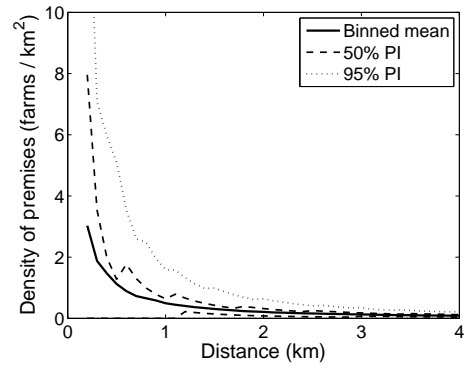
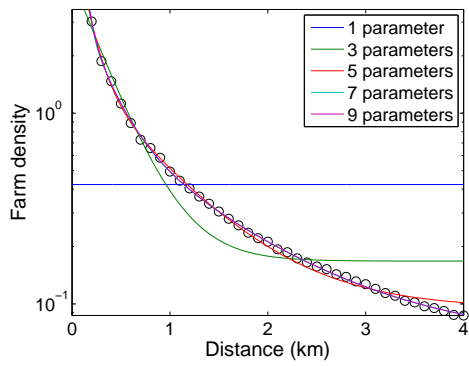


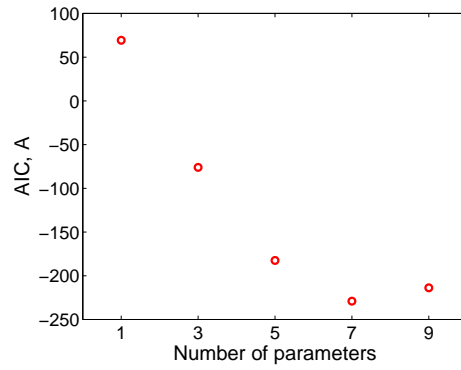
(a) Infectivity kernel



(b) Distribution of farms in Cumbria

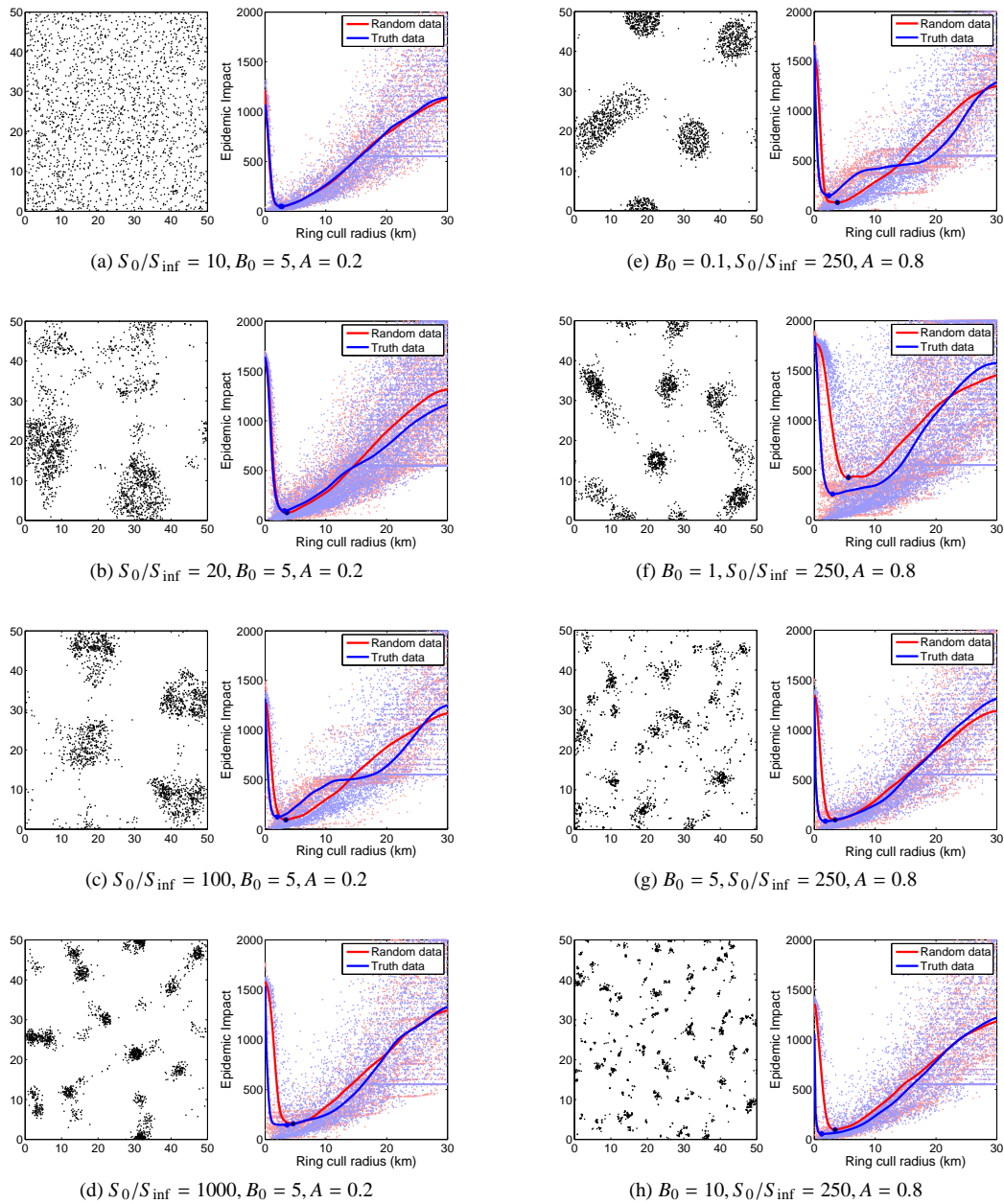


(c) Exponential fits



(d) AIC minimisation

Supplementary Figure 1: Parameterisation of spatial clustering in Cumbria. Pane (a) shows the model infectivity kernel, which motivates a set of distance bins and a cutoff. In (b), the mean binned density is shown together with the intervals within which 50% and 95% of farm-level binned density profiles sit. A sequence of exponential fits and their AIC values are shown in (c) and (d).



Supplementary Figure 2: Spatial location of farms (first column) and mean epidemic impact against ring cull radius for the random data (red line) and the truth data (blue line) for farm networks with different degrees of spatial clustering. 2000 farms are in each network. In (a)–(d) (first column of panes),  $B_0 = 5$  and  $A = 0.2$  with  $S_0/S_{\text{inf}}$  varying such that (a)  $S_0/S_{\text{inf}} = 10$ , (b)  $S_0/S_{\text{inf}} = 20$ , (c)  $S_0/S_{\text{inf}} = 100$ , (d)  $S_0/S_{\text{inf}} = 1000$ . In (e)–(h) (second column of panes),  $S_0/S_{\text{inf}} = 250$ ,  $A = 0.8$  with  $B_0$  varying such that (e)  $B_0 = 0.1$ , (f)  $B_0 = 1$ , (g)  $B_0 = 5$ , (h)  $B_0 = 10$ . For the epidemic impact panes, raw data for both the random data (red dots) and truth data (blue dots) are also given.