Controlling Transmission Of *Campylobacter* Between Broilers

Katsma, W.E.A.¹, De Koeijer, A. A.¹, Jacobs-Reitsma W.F², and Wagenaar, J.A.¹

¹ Animal Sciences Group, Wageningen University and Research Centre
   PO Box 65 8200 AB Lelystad The Netherlands
² RIKILT Institute of Food Safety, Wageningen University and Research Centre
   PO Box 230, 6700 AE Wageningen The Netherlands

*Campylobacter* is one of the leading causes of bacterial gastro-enteritis in human. To control the major culprit of human *Campylobacter* infections, i.e. contaminated poultry meat, additional control strategies at all stages are assessed for their efficacy. For control strategies at broiler farms we formulated a model on the transmission dynamics of *Campylobacter* at Dutch broiler farms.

The model incorporates the *Campylobacter* transmission between broilers and the *Campylobacter* transmission between flocks. To quantify the transmission between broilers, experimental data were fitted to a logistic growth curve. Within two to three weeks, a flock is completely colonized. To describe the *Campylobacter* transmission between flocks, field data were assessed using Generalized Linear Modelling. We assumed that infections are introduced via 3 routes: introduction from other flocks in the present production cycle, introduction from flocks in the previous cycle and introduction from other sources. The model calculates a prevalence of infected flocks of 44% and of detectible flocks of 38%, which is a slight underestimation according to surveillance data.

Next, we assessed three possible intervention scenarios, (theoretical) improvement of hygienic measures, a ban on different types of livestock on all farms, and separate slaughter of positive and negative tested flocks to prevent cross contamination of carcasses. Improving hygiene is potentially the most effective strategy, but given all the effort already invested in hygiene, the feasibility is a problem. Separate slaughter requires a high certainty to detect infected flocks. This was calculated from the model for pre harvest testing methods.