

SCIENTIFIC REPORT

Analysis of the baseline survey on the prevalence of *Salmonella* in turkey flocks, in the EU, 2006-2007

Part B: factors related to *Salmonella* flock prevalence and distribution of *Salmonella* serovars¹

Report of the Task Force on Zoonoses Data Collection

(Question N° EFSA-Q-2006-041B)

Adopted on 10 October 2008

SUMMARY

A European Union-wide baseline survey was carried out to determine the prevalence of *Salmonella* in breeding turkey flocks and fattening turkey flocks in order to provide the scientific basis for setting a Community reduction target for *Salmonella* in turkey flocks. The sampling of turkey flocks took place between October 2006 and September 2007. Five pairs of bootswab samples were taken from the housing environment of breeding turkey flocks in the nine weeks preceding slaughter and from fattening turkey flocks in the three weeks preceding slaughter. A total of 532 breeding turkey flocks and 3,702 fattening turkey flocks with validated results from the European Union were included in the survey analyses. The analysis of *Salmonella* prevalence was carried out earlier and was published by the European Food Safety Authority on 30 April 2008 in the Part A report (EFSA 2008). The Community prevalence of *Salmonella*-positive breeding flocks was 13.6%, whereas prevalence of *Salmonella*-positive fattening flocks was 30.7%. The Member State-specific observed flock prevalence varied greatly.

In breeding turkey flocks, *Salmonella* infection was detected in six out of 14 Member States providing data. Visual inspection of the association between potential risk factors and *Salmonella* by means of graphs indicated that *Salmonella* positive flocks tended to be associated with holdings with relatively large numbers of birds distributed across flocks of relatively small size. The age of turkeys was lower in positive than in negative breeding flocks. Moreover, the prevalence of infection was greater in unvaccinated than in vaccinated breeding turkey flocks. In general, factors descriptively associated with *Salmonella* in breeding turkey flocks reflected the characteristics of the turkey production industry in the small number of Member States in which positive breeding flocks were concentrated. In fact, it was not possible to carry out formal statistical analysis of the effects of risk factors for *Salmonella* in breeding turkey flocks.

¹ For citation purposes: Report of the Task Force on Zoonoses Data Collection on the Analysis of the baseline survey on the prevalence of *Salmonella* in turkey flocks, Part B, *The EFSA Journal* (2008) 198, 1-224.

The effects of risk factors for *Salmonella* in fattening turkey flocks was analysed by multiple logistic regression. The risk of *Salmonella* infection increased as the number of turkeys in the holding increased. However, in holdings with the same number of turkeys, the risk of *Salmonella* infection decreased if birds were sub-divided into a relatively large number of flocks. The risk of *Salmonella* in fattening turkey flocks was greater in the periods October 2006-December 2007 and January-March 2007 than in July-September 2007. The presence of breeding turkey flocks in the same holding increased the risk of infection for fattening turkey flocks. Vaccinated flocks were at lower risk of infection than unvaccinated flocks. Finally, the risk of *Salmonella* was greater for free-range flocks (standard and organic) than for flocks raised conventionally.

The regression analyses also revealed that there is considerable variation between the significant risk factors for *Salmonella* infections of fattening turkeys among Member States.

The distribution of *Salmonella* serovars in fattening turkey flocks in different Member States was very heterogeneous. This suggests that the transmission of most *Salmonella* serovars mainly occurs among flocks within the same Member State. Only *S. Saintpaul* was detected in a cluster of neighbouring Member States, and this might suggest transmission and/or a common source of the serovar across these Member States.

The apparently poor correlation between *Salmonella* serovars present in turkeys with serovars isolated from salmonellosis cases in humans would suggest that the role of turkeys as a source of *Salmonella* infections in humans is lower than the role of some other animal species, such as *Gallus gallus* (broilers and laying hens). However, serovars such as *S. Typhimurium*, *S. Hadar* and *S. Derby* were found in turkeys and are often implicated in human disease. Therefore, the potential role of turkey meat as a source of *Salmonella* for people should not be overlooked.

Analysis of serovar and phage type distribution suggested that, while feed and other animal species could act as sources of *Salmonella* for turkey flocks, their role in this aspect remains to be clarified.

It is recommended that Member States consider the factors found to be associated with *Salmonella* infection in turkeys in this survey when they are designing their *Salmonella* control programmes for turkey flocks. In particular, Member States are encouraged to guarantee *Salmonella* controls in breeding flocks in order to prevent the subsequent infection of fattening flocks. Vaccination might be considered as a tool for control in Member States where *Salmonella* is present. Specific bio-security measures may also be devised for free-range farming. Member States are also invited to carry out further studies at national level to identify specifically national risk factors for *Salmonella* infections in turkeys.