

Implementing the EU *Salmonella* Pig Survey: the UK

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Introduction

- A decision (EC) No 2006/668 required each Member State to carry out a survey to assess the prevalence of *Salmonella* spp. in herds of slaughter pigs sampled in abattoirs.
- Results are currently being analysed by the EU. They are kept confidential until officially published by the EU later this year (2008)

Aims

- To set a baseline for Member States and a precursor to target for reduction of *Salmonella* in pig meat to protect public health.

Objectives

EU

- To estimate the prevalence of *Salmonella* infection in slaughter pigs in each Member State.

UK

- Compare prevalence to previous UK surveys (caecal samples).
- Include antimicrobial and *Campylobacter* testing.
- Data will be used to support Quantitative Risk Analysis.



Method

- Sampling between 1st October 2006 and 30th September 2007.

Sampling size

- Was in accordance with the total number of finishing pigs present in the UK pig population.
- Calculation was based on an infinite population, an estimated prevalence of 50%, a confidence level of 95% and an accuracy of 4%.
- The UK had a population of 4.7 million pigs, which correspond to a sample size of 600 pigs + 10% to cover any issue during the process.
- Only pig carcasses that had been kept in the UK for at least three months preceding slaughter were sampled.

Number of abattoirs

- Eighteen abattoirs covering 81.8% of the slaughtered pigs have been selected throughout the UK: three in Northern Ireland, one in Scotland, fourteen in England, none in Wales.
- All selected abattoirs received a letter about the coming survey, a training visit and the sampling protocol.

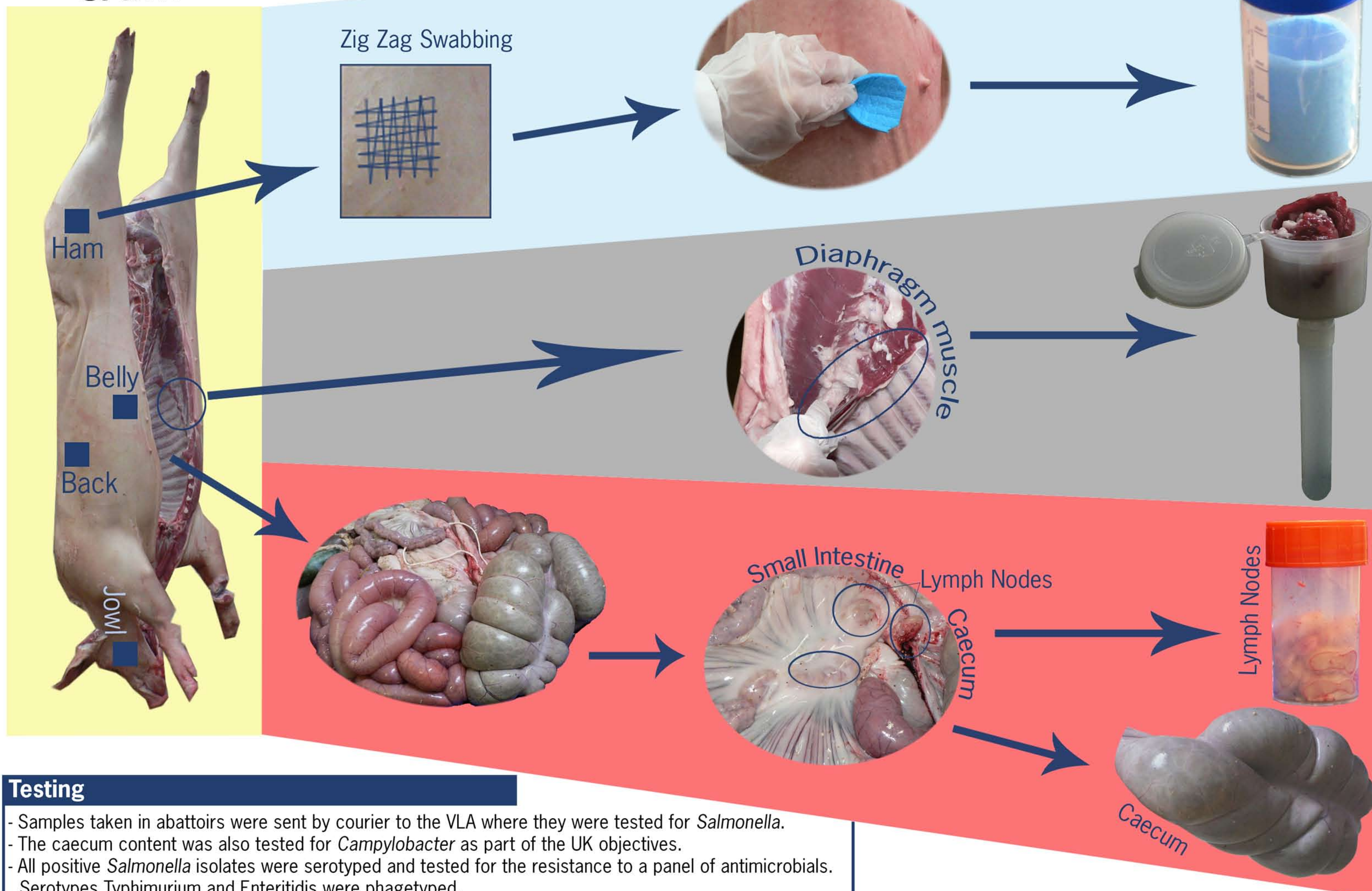
Selection of samples

- The number of carcasses to be sampled per abattoir was proportional to the throughput of each during the previous year (2005-2006).
- The sampling was stratified by months. 55 carcasses were sampled every month.
- A sampling schedule was produced monthly for each abattoir. Sampling days were selected randomly.
- The rank of the carcass to be sampled on a specific day was also selected at random, e.g. 655th pig killed on a day.
- Casualties, condemned carcasses or carcasses with a live weight of less than 50kg or more than 170 kg were excluded from the study. If the selected carcass was excluded, the next suitable carcass on the line was selected instead.

Type of samples

- For the EU, three samples were collected from each carcass: lymph nodes, meat sample, carcass swab.
- For the UK, the caecum was collected to allow comparison with previous surveys.
- A compulsory questionnaire required by the EU was completed for additional data.

SAMPLING METHOD



Type of Samples

Carcass Swab (EU)

Sample was taken in the left or right side of the carcass using one single sponge for all four sites (ham, belly, back, jowl). Two sites were swabbed with one side of the sponge, which was then turned over for swabbing the remaining two sites.

Meat sample (EU)

Sample was taken from the diaphragm muscle or occasionally from the neck muscle (not fat, gristle or membrane). Juice was tested.

Lymph nodes (EU)

The ileocaecal lymph nodes are at the junction between the caecum and the end of the small intestine. At least five lymph nodes were bluntly harvested with gloved fingers to reach 25g.

Caecum (UK)

The whole caecum was collected at the abattoir after the lymph nodes were removed and it was sent to the lab where 10g of its content was milked for testing.

Testing

- Samples taken in abattoirs were sent by courier to the VLA where they were tested for *Salmonella*.
- The caecum content was also tested for *Campylobacter* as part of the UK objectives.
- All positive *Salmonella* isolates were serotyped and tested for the resistance to a panel of antimicrobials. Serotypes Typhimurium and Enteritidis were phagetyped.
- The meat juice was collected from thawed samples and tested for *Salmonella* antibodies (ELISA test).

Deliveries

Achievements

- 660 carcasses to sample = target met.
- 600 carcasses needed for the EU = 641 sampled.
- Monthly sampling schedule respected = 55 pigs/month.
- Number of samples per abattoir = target met.
- Results delivered to EU in XLM format.
- Good communication – regular contact in case of problems or doubts helped to prevent problems.

Difficulties

Deliveries and logistics

- The courier lost samples, delivered them at the wrong address or too late to be tested within the required time (96hrs) or failed to pick them up on many occasions.
- Chasing unanswered questions in the questionnaire.

Sampling

- Carcass weight too low (<50kg)
- Collecting ileocaecal lymph nodes was the most difficult. Many samples didn't have the required 25g.
- Some caecum were empty
- Sampling the right pig on a day was challenging due to many unexpected issues in abattoirs: breakdown, carcass falls off the line, staff availability, reduced number of pigs killed on a day and carcasses numbered at the end of the line made it hard to spot the right carcass at the beginning of the line.



Overall, good participation, good work, targets met but nineteen carcasses had to be rejected.

Acknowledgement

The authors would like to thank all the abattoirs that took part in the survey for their hard work and cooperation. Also colleagues in the Meat Hygiene Service (MHS) who periodically took all required samples, Scottish Executive Environment and Rural Affairs Department, Welsh Assembly Government, Department of Agriculture and Rural Development in Northern Ireland (DARD), the VLA's regional labs and the Food Standard Agency (FSA) for their help and advice in completing the survey. This survey was funded by Defra, DARD, the FSA and the European Commission. The additional work was funded by the FSA.