

UK MONITORING PROGRAMMES TO DETECT *SALMONELLA* IN PIGS**EXECUTIVE SUMMARY**

1. Several monitoring programmes have been undertaken in GB and the UK since 1999 to determine the prevalence of *Salmonella* in pigs. No change in prevalence has been observed despite the efforts of an industry lead action plan.
2. Research studies have identified outdoor pig production as a risk factor for *Salmonella* infection of pigs and identified that control at the farm level under these circumstances is difficult. Current ongoing research studies in the UK are collecting information on farm factors including farm production type and *Salmonella* antibody status for further risk factor analysis.
3. Information on farm factors including farm production type was collected in the UK during the recent EU baseline monitoring programme that took place from October 06-07. This information was however often incomplete which reduced the power of the analysis and only specialist finishing farms as compared to breeder finisher farms was identified as a risk factor.
4. The EFSA baseline study report and the UK analysis of further information have both identified a slaughterhouse effect. ¹
5. The EFSA report encourages member states to produce control plans for the reduction of *Salmonella* that include both pre and post harvest controls to reduce the risk to the consumer from pig meat. The UK refocused ZNCPig scheme includes both pre and post harvest actions ².
6. The monitoring programmes have not been designed to measure the difference in prevalence of *Salmonella* between different production systems.

The board is asked to

7. **note** the response to the question asked in the February board meeting.

HYGIENE & MICROBIOLOGY DIVISION

Contacts: Mary Howell Tel: 020 7276 8373
mary.howell@foodstandards.gsi.gov.uk

UK MONITORING PROGRAMMES TO DETECT *SALMONELLA* IN PIGS**Issue**

1. To provide a response to a question asked during the February 09 board meeting

Strategic Aims

2. To further reduce foodborne illness by reducing *Salmonella* in pigs at slaughter

Background

3. Monitoring programmes undertaken since 1999 have shown no improvement in *Salmonella* prevalence in pigs at slaughter despite the efforts of an industry led on farm action scheme. Pig production methods have changed during this time and there is an increase in the percentage of pigs born and reared outdoors. Research studies have identified that outdoor production although not always resulting in pigs that are positive for *Salmonella* is identified as a risk factor thought to be due to the difficulty of preventing contact with wildlife.
4. At the February board meeting during discussion of the progress report of the food safety group³ a question was asked whether the *Salmonella* in pigs monitoring programmes could detect the effect of changing pig production methods.
5. Since 1999 three surveys have been undertaken to measure the prevalence of *Salmonella* in pigs at slaughter.
6. In 1999/2000, the Veterinary Laboratories Agency (VLA) and the Meat and Livestock Commission (MLC) carried out a joint, 12 month survey of pigs in British slaughterhouses. Caecum contents (25g), were collected from 2509 pigs from 34 participating abattoirs (80% national throughput). Sampling schedules were randomised and constructed according to the abattoir's throughput for 1998. A maximum of 5 pig carcasses per abattoir were sampled on a different day each week throughout the year. Anonymity of each abattoir and origin of slaughter animals was maintained throughout the study. 23.0% [CI_{95%} 21.4-24.7] of samples were positive for *Salmonella*. This study did not collect information on pig production type

7. In 2003/2004, the VLA and MLC carried out a second joint survey of pigs in British slaughterhouses. Caecum contents (10g) were collected from 529 pigs from 41 participating abattoirs (86% national throughput). To reduce the effect of clustering, a maximum of four samples was collected on any one occasion. This survey found the carriage of *Salmonella* in caecal contents of 23.4% [CI_{95%} 19.9-27.3]. This result showed that there was no significant change from the 1999/2000 survey.
8. In 2006/2007 the VLA organised a UK survey as part of an EU wide survey of pigs in slaughter houses carried out to establish a baseline prevalence of *Salmonella* under Directive 2003/99/EC and Regulation (EC) No 2160/2003. Randomised sampling and analysis took place in accordance with Annex I of the Commission Decision 2006/668/EC. Samples were taken in 25 member states and Norway from lymph nodes of randomly selected pigs in the selected slaughterhouses. The UK and several other MS carried out additional voluntary testing of the same carcasses, sampling meat juice to determine levels of antibodies to *Salmonella* and taking swabs to determine *Salmonella* contamination of carcasses in the slaughterhouse: In addition to the EU requirements the UK also took a sample of caecum contents to enable a comparison with the previous 2 surveys to be made. MHS staff in GB abattoirs and DARD staff in NI abattoirs took samples according to a protocol and also provided additional information via a standardised questionnaire that included farm production type. The UK survey sampled 660 pigs at Slaughterhouses, that accounted for 80% of the number of pigs slaughtered, stratified by month to ensure that the full seasons were covered and also according to the number of pigs slaughtered at each slaughterhouse. between October 2006 and September 2007. The additional information has been analysed at the community level by EFSA and by the VLA at the national level. In the UK 21.8% per cent of lymph nodes, 22. 9% of caecal contents and 13.5% carcasses were positive for *Salmonella*.
9. EFSA published a report of the results in June 2008 and a further report including information on risk factors In December 08 ¹. Due to the inconsistent and variable information at the farm level no conclusions on farm related risk factors were possible. Further analysis of the UK additional information was undertaken by the VLA. The information on farm factors including production type was often incomplete and only specialist breeder finisher farms were identified as a risk factor for *Salmonella* presence in lymph nodes from pigs slaughtered from these farms.
10. Husbandary systems where pigs are kept outside total confinement (pasture, free range, open sided barns etc) are at an increased risk of becoming infected with

Salmonella and control under these circumstances is very difficult as a result of continuous exposure. (Jenson et al 2006 ⁴)

11. The EFSA report¹ and the further analysis of the UK data have both identified a slaughterhouse effect related to the risk of producing a pig that tested positive by carcass swab and indicated that different slaughterhouses had a different outcome from processing *Salmonella* positive pigs
12. In the conclusions of the EFSA report Member States are encouraged to develop national control programmes that include both pre and post harvest controls to reduce the risk to the consumer from *Salmonella* in pig meat
13. The refocused ZNCPig scheme includes action both pre and post harvest with the target for reduction set on carcasses. ⁴

References

- ¹ Report of the Task Force on Zoonoses Data Collection on the Analysis of the baseline survey on the prevalence of *Salmonella* in slaughter pigs, Part B, *The EFSA Journal* (2008) 206,1-111
- ² Control Plan for *Salmonella* in Piguat INT 08/09/01
- ³ Progress report food safety group FSA 09/02/04
- ⁴ Jenson et al 2006 Survival and Transmission of *Salmonella* Typhimurium in outdoor organic pig farming. *Applied and environmental Microbiology*

Board Action Required

14. The Board is asked to:

- **note** the information provided and the EFSA recommendation for control plans to include action pre and post harvest.