Implementation of a *Salmonella*-free meat pork production system in Belgium: study plan, methods and preliminary screening results.

**JACOB B.** *1; GROVEN B.** *1; FLAMENT E.** 2; VERSTRAETE E.** 2; DAUBE G.** 1

(1) MICROBIOLOGY LABORATORY, VETERINARY MEDECINE FACULTY, UNIVERSITY OF LIEGE, BELGIUM.

(2) INDUSTRIAL PARTNER

**INTRODUCTION**

Foodborne toxii-infections caused by *Salmonella* are widespread in industrialized countries. Nothing less than 15 000 cases of human *salmonellosis* are detected each year in Belgium without taking into any diagnosis. According to the Belgian veterinary inspection services, 26.3 % of pig carcasses are contaminated with *Salmonella* out of 11.1·10⁶ slaughtered pigs each year. However, *Salmonella* presence in pig intestinal tract doesn’t entail necessarily carcass presence and human infection depends on the ingested germ number.

The objectives of this project begun in February 1999 are to obtain and especially maintain a *Salmonella*-free pig production system (4). Besides, implementation and standardization of surveillance methods, microbiological screening and typing should allow immediate reaction.

**STUDY PLAN AND METHODS**

Four major aspects are approached in the study.

The first one consists in the setting up of a questionnaire allowing to put up the situation anamnesis in terms of risk factors in the four different pig production systems. Divided into variable data collected to each visit and non variable data collected once a year, the questionnaire covers sow insemination to fattening pigs including feeding stuffs, carrying, slaughtering, cutting up and commercialization. This suggests precautions and corrective actions to consider for the surveillance plan.

To achieve an efficient surveillance plan, a reliable, sensitive but not time-consuming method is evaluated for *Salmonella* detection. The commercial kit used (Probelia™ *Salmonella* sp amplification kit, Sanofi-Diagnostic-Pasteur, France) allows detection in 24 hours. A reference method, using the Diassalm culture media (Diagnostic Semi-Solid *Salmonella* agar, LAB M) (Fig 2), confirms in parallel the PCR results and isolates the strains for further characterizations.

**RESULTS**

At the present time, the commercial kit gives rise to inhibition problems with pig slurry samples; feed sample analysis lacks of reproducibility with PCR technique. On the other hand, the reference method always provides reproducible results with a detection limit comprised between 1 and 10 CFU/25g of feed and pig slurry samples.

**DISCUSSION**

Optimizations are necessary to get reproducible and repeatable results before using these methods in surveillance.

**ACKNOWLEDGEMENTS**

This work is financed by the Ministry of Small Enterprises, Traders and Agriculture, DG6- Research and Development division and by the Ministry of Walloon Country.

**REFERENCES**


*Corresponding author address: Sart-Tilman, Bât. B43bis; B4000 LIEGE; BELGIUM B.Jacobs@ulg.ac.be