BLOOD SAMPLING AT TWO SLAUGHTERHOUSES AND SEROLOGICAL SCREENING OF SALMONELLA INFECTIONS IN SWINE USING AN INDIRECT ELISA.

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The Animal Health Service in the Netherlands is currently investigating Salmonella infections in finishing pigs in the Netherlands. The investigations combine 2 projects: the SALINPORK-project, financed by the European Union, and a national project 'Speerpunt Salmonella', financed by the Dutch Ministry of Agriculture, Nature management and Fisheries and the Dutch Product Board for Livestock and Meat.

MATERIAL AND METHODS.

Comparison of sampling tubes: in a pilot experiment 3 blood sampling tubes were compared to make sure that the tube used in the experiment did not have any significant effect on the serological test results. The 3 tubes were:

- the Monoject® tube (Sherwood Medical, 's Hertogenbosch, the Netherlands), glass, sterile, vacuum, no additives, coated with silicones, red rubber stopper, 10 millilitre, 16 x 100 mm, distributed by the Animal Health Service for blood sampling in cattle;
- the Monovette® tube (Sarstedt, Etten-Leur, the Netherlands), plastic, sterile, plunger, gel intended to separate blood clot from serum, blood clot activator (silicon), screw-cap, 9 millilitre, 16.5 x 92 mm, distributed by the Animal Health Service for blood sampling in pigs;
- an experimental tube (Becton Dickinson, Leiden, the Netherlands), plastic, sterile, vacuum, blood clot activator (silicon), gel, coated with silicones, red and grey rubber stopper, 9 millilitre (excl. gel), 16 x 100 mm, labelled with an unique barcode.

48 Samples were collected in slaughterhouse A at bleeding. Stoppers or screw-cap were removed and the tubes were filled simultaneously, with the first blood drawn at bleeding. A consequence of this procedure is that blood samples are not collected sterile. Samples were handled and tested as described below.

The plastic tube was selected because it cannot break, it was more cost effective and uniquely identified by barcode.

Blood sampling: was done at 2 slaughterhouses (A + B) in 1996 in the period from July 22 until October 9th and October 14th until December 18th respectively on every Monday, Tuesday and Wednesday. Slaughterhouse A has a slaughter capacity of 7000 pigs/day and slaughterhouse B of 4000 pigs/day. The first three days of the week were used for sampling because at those days most regular suppliers delivered their pigs to the slaughterhouse. Samples were collected 4 to 10 minutes after the beginning of bleeding, collecting the last blood dripping from the pig. At this point at the slaughterline there was no risk of accidents with the bleeding-knife and enough room for 2 (slaughterhouse B) or 3 (slaughterhouse A) man to work. Pigs were hanging upside down from the line in one hind leg.

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which means that results of samples within a farm have a tendency to be the same. This is according to expectations because Salmonella is a infectious disease. As a result of this tendency the Salmonella status of a farm can be determined with less samples than when the distribution of results is completely random. The number of samples required can be calculated with the formula (2):

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\text{samples required} = \text{number of random samples} \times (1 - \text{ICC})
\]

Using this formula we conclude that with 40 samples per farm the status of the farm can be established with the same degree of reliability (95%) as with 60 samples.

**DISCUSSION AND CONCLUSIONS.**

It can be concluded that large numbers of blood samples can be collected at a slaughterline by using a handheld barcode scanner. No statistical significant differences in diagnostic results between tubes were found. From the interclass correlation coefficient of 0,34 it can be concluded that 40 samples per farm are enough to establish the Salmonella status of the farm. The results of the Dutch Salmonella ELISA will have to be calibrated to the Danish test.