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Occurrence of *Salmonella* on 5 Slected Minnesota Swine Farms

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Background: The State of Minnesota, Department of Agriculture and The University of Minnesota have initiated the Minnesota Certified Pork (MNCEP) program. This program is a pilot project that links consumers and farmers. Monitoring of *Salmonella* in swine herds is a major part of the Program. Our purpose was to document the occurrence of *Salmonella* on 5 swine farms to provide a baseline for *Salmonella* monitoring as farms entered the MNCEP program. We present the *Salmonella* prevalence from individual fecal, pooled pen fecal and serologic samples.

Methods: Five commercial swine farms from Minnesota were sampled during February and March 2001: 4 farms were participating in the MNCEP program and 1 farm participated in previous studies. From these 5 farms, 496 individual feces, 496 matching individual sera and 224 pooled pen fecal samples from finishing pigs within 4 weeks of slaughter were collected. Pen and individual fecal samples were tested for the presence of *Salmonella* spp. Serum samples were tested for the presence of antibodies against *Salmonella* using Salmotype® ELISA (Labordiagnostik Leipzig) according to the manufacturer's instructions. S. Typhimurium isolates were subtyped by Pulsed Field Gel Electrophoresis (PFGE) at the Minnesota Department of Health.

Results: *Salmonella* spp. were found in 83 (11.5%) of 720 individual and pooled fecal samples. Three farms were culture positive: 2 were positive by individual and pen cultures and one was positive by pen culture only. Seroprevalence was 1.4 % (7/496). Six *Salmonella* serotypes were found on the 5 farms (Agona, Kaneshie, Mbandaka, Tennessee, Typhimurium var. Copenhagen, and Worthington) with serovars Agona and Typhimurium var. Copenhagen being the most frequent. From all 5 farms, there were 61 positive individual feces (12.3 %) and 22 positive pen feces (9.8 %). No culture positive samples were found on Farms 1 and 2. On Farm 3, 53(19.5%) of 272 individual and 1 (0.9 %) of 112 pooled pen fecal samples were positive. On Farm 4, 8 (11.6%) of 68 individual and 20 (58.8 %) of 34 pooled pen fecal samples were positive. On Farm 5 only one positive pen fecal sample was isolated.

Discussion: This study was conducted as a first step to document the prevalence of *Salmonella* on these selected farms. The level of *Salmonella* prevalence was low in most farms, except for individual fecal on Farms 3 and pooled pen fecal samples on Farm 4. This may be due to a cluster effect from sampling. Interestingly, these two farms qualified as low prevalence farms in previous serologic tests, while the previously higher and medium prevalence farms (Farms 1, 2 and 5) had a low prevalence ($\leq$ 2 %) in this study. This demonstrates the dynamic nature of *Salmonella* infection on farms. Farms 1 and 2 with no positive individual or pooled pen fecal samples had 0 % seroprevalence while farms 3, 4 and 5 with positive isolates had serological evidence of *Salmonella*. Even though our sample size (5 farms) was small this may demonstrate the value of serologic monitoring of herds as a way to monitor *Salmonella* prevalence of farms enrolled in the Minnesota Certified Pork Program. This will need to be evaluated further.

References

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