Campylobacter in broilers in Sweden

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Campylobacter surveillance programme

- 1st July 2001 - 31st December 2005
- All flocks sent for slaughter are sampled
- Replaced earlier monitoring programme
- Financed by Swedish Poultry Meat Association, Swedish Board of Agriculture and European Commission
Campylobacter in broilers in Sweden

% over time:

- Neckskinn
- Cloacal
- Caecum
- Sock samples

Years:
- 2001 *
- 2002
- 2003
- 2004
- 2005
- 2006

6 mån: 6 months

Graph shows the percentage of Campylobacter in different samples over the years from 2001 to 2006.
Campylobacter in broilers in Sweden

Positive slaughter groups, members in SPMA
cecum 2006
cloacal samples 2002-2005,
Studies in connection with the *Campylobacter* programme

- Farm studies
  - Visits
  - Sampling
- Transport crates
- Quantification
  - Neck skin
  - Carcasses
Contamination by transport crates?

Results

- *Campylobacter* were isolated from 57% of the crates
- There is a risk to contaminate chickens during transport to slaughter
- The risk of contamination by split slaughter could not be proved
- Low within flock prevalence are not caused by contaminated crates
### Swedish broiler producers

1\textsuperscript{st} of July 2001 to 30\textsuperscript{th} of June 2004

<table>
<thead>
<tr>
<th>Categories of producers in relation to \textit{Campylobacter} frequency</th>
<th>Number of producers</th>
<th>Fraction of total no of slaughter groups</th>
<th>Fraction of total Campylobacter load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never; 0% pos</td>
<td>13 (10%)</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Sporadic; 1-9% pos</td>
<td>43 (31%)</td>
<td>29%</td>
<td>8%</td>
</tr>
<tr>
<td>Seasonally; 10-30% pos</td>
<td>58 (42%)</td>
<td>50%</td>
<td>51%</td>
</tr>
<tr>
<td>Often; &gt;30% pos</td>
<td>24 (17%)</td>
<td>18%</td>
<td>41%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>138 (100%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Critical points?
Study at 31 farms during 89 rotations 2004

- Stable
- Anteroom
- Ventilation
- Surroundings
- Feed
- Water
- Insects
Proportion of *Campylobacter* positive rotations at different kind of farms

<table>
<thead>
<tr>
<th>Occurrence of Camp</th>
<th>High (&gt;30%)</th>
<th>Interm (10-30%)</th>
<th>Low (&lt;10%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camp in the surroundings</td>
<td>16/35 (46%)</td>
<td>10/27 (37%)</td>
<td>11/27 (41%)</td>
</tr>
<tr>
<td>Camp in the stable</td>
<td>16/35 (46%)</td>
<td>4/27 (15%)</td>
<td>3/27 (11%)</td>
</tr>
</tbody>
</table>
Quantitative (log cfu) analyses compared with Campylobacter results at farm level and slaughter.

Error Bars: ± 1 Standard Error(s)

- Neckskin
- Carcass before
- Carcass after

Legend:
- Neg slaughter neg stable
- Neg slaughter not sampled stable
- Pos slaughter neg stable
- Neg slaughter pos stable
- Pos slaughter not sampled stable
- Pos slaughter pos stable
Thank you for your attention

**Campylobacter program in Sweden, more to read:**

- Transmission of *Campylobacter* spp. to chickens during transport to slaughter, J of Appl Microbiology 2005, 1149-1157
- Postchill *Campylobacter* Prevalence on Broiler Carcasses in Relation to Slaughter Group Colonisation Level and chilling system, J of Food Prot 2006, 495-499
- Distribution of *Campylobacter* Genotypes on Broilers during Slaughter, J of Food Prot 2006,