Avian Influenza 2003
‘A six months experience’
21 October 2008
Ben Dellaert
Avian Influenza, A six months experience, Tuesday 21 October 2008
Avian Influenza

- Virus
- Subtypes  H1 t/m H15
  N 1 t/m N9
  poultry susceptible to all subtypes
- Low pathogenic / high pathogenic
- Clinical picture HPAI
  decreased production / mortality
  respiratory problems
  haemorrhage crest

=> Highly contagious
General European Community Measures (1)

→ EU-directive 92/40/EEC (now 2005/94/EEC)

- Virus subtype H5 or H7 → HPAI
- Suspicion: isolation of farm and poultry eggs only to processors
- Confirmation: stamping out destruction eggs, feed, manure recall meat, (hatching) eggs cleaning & disinfection
General European Community Measures (2)

- Protection zone (pz) ≥ 3 km → stand still poultry
  Exceptions:
  - day old chicks, ready to lay pullets to an empty holding (in sz)
  - hatching eggs to a hatchery
  - immediate slaughter (national mark)

Measures lifted 21 days after c & d
General European Community Measures

- Surveillance zone (sz) $\geq$ 10 km

  Same as protection zone

  but 15 days after latest confirmation poultry may be brought outside surveillance zone

  measures lifted 30 days after c & d

  vaccination only as additional measure
Dutch National plan made in advance

- Measures 92 / 40 / EEC
- Stand still 72 hours
Outbreak AI per day
Measures taken (1)

• Stamping out suspected farms including non-commercial holdings

• Preventive measures including non-commercial holdings

• Welfare measures
Measures taken (2)

Beyond 92 / 40/EEC:

• Stand still 1 : 72 hours
  2 : 132 hours

• Export ban live poultry, hatching eggs, manure

• Eggs from farms in sz only to egg processor(s)
  in sz → after 55 days derogations

• No slaughter of birds from sz

• No hatching in sz

• Compartments to restrict transport
Buffer zone
Protection zone (3 km)
Stand still (10 km)
Compartment zone
Consequences (1)

Culled species

Layers 17,1 mln
Broilers 12,3 mln
Ducks 0,3 mln
Turkeys 0,8 mln
Other 0,2 mln

-------------
30,7 mln

1,400 commercial ‘farms’
16,000 hobby ‘farms’
Consequences (2)

In restricted areas:

40% of capacity packing stations

40% of capacity egg processors

30% of slaughter capacity broilers

100% of slaughter capacity ducks
Consequences (3)

- Costs of culled animals, products, incl. organisation
  € 270 mln → financed by EU, national government, farmers

- Total loss poultry sector € 500 mln
Other countries

- Belgium 8 holdings
  Measures according to EU-directive
  Preventive culling 3 km (118 holdings)

- Germany 1 holding
Restocking

- Specific decision EU – Netherlands, Germany, Belgium
  - 5 days after c & d sentinel birds
    - young hens
    - 1% of normal flock
    - weekly inspection by veterinarian
    - after 21 days sampling

=> 22nd of August 2003 all measures lifted
## Market situation poultrymeat sector before/during/after AI

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broiler production (1000 ton)</td>
<td>694</td>
<td>535</td>
<td>606</td>
</tr>
<tr>
<td>Turkey production</td>
<td>28</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Duck production</td>
<td>16</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Total meat production</td>
<td>765</td>
<td>583</td>
<td>666</td>
</tr>
<tr>
<td>Total Poultrymeat cons/cap kg.</td>
<td>22,5</td>
<td>21,5</td>
<td>21,9</td>
</tr>
</tbody>
</table>

Avian Influenza, A six months experience, Tuesday 21 October 2008
Market situation egg sector before/during/after Al

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egg production (Million)</td>
<td>9,550</td>
<td>7,045</td>
<td>9,200</td>
</tr>
<tr>
<td>Egg products (1000 ton)</td>
<td>127</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>Egg consumption per capita (pcs)</td>
<td>184</td>
<td>177</td>
<td>181</td>
</tr>
</tbody>
</table>
Lessons to be learned (at that time)

• Origin of virus?
• Risk free range?
• Efficiency control - restrictions to eggs
  culling strategy and speed
• EU–policy non-vaccination
• Monitoring LPAI in the EU
• Efficient type of culling large amounts of birds
Culling methods

1. Electrocution – small mobile slaughter line
2. House gassing
3. RF₂ (small containers)
4. Later introduced: Controlled Atmosphere Stunning (CAS)
   a. Induction phase 40% CO₂, 30% O₂
   b. Euthanasia phase 80% CO₂,
HOUSE GASSING (2)
### COMPARISON OF CULLING METHODS IN 2003 (1)

<table>
<thead>
<tr>
<th>Culling Method</th>
<th>Capacity</th>
<th>Animal Welfare</th>
<th>Feather spreading</th>
<th>Working condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stress</td>
<td>Back laying</td>
<td>Living animals</td>
<td></td>
</tr>
<tr>
<td>Electrocution</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>House gassing</td>
<td>++</td>
<td>o/-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>RF$_2$</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>o</td>
</tr>
<tr>
<td>CAS</td>
<td>n.a.</td>
<td>+</td>
<td>+</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

n.a. = not available

Source: Dietvorst and Kamphorst, 2003

*Avian Influenza, A six months experience, Tuesday 21 October 2008*
COMPARISON OF CULLING METHODS IN 2003 (2)

• New experiences CAS system

• Comparable to CO\textsubscript{2} stunning/killing for slaughter
  
  a. Induction phase 40 sec.
  
  b. Euthanasia phase 3 min.
COMPARISON OF CULLING METHODS IN 2003 (3)

- Every method advantages and disadvantages
- Strongly depending on housing system
DECISION-TREE CULLING METHODS

Avian Influenza, A six months experience, Tuesday 21 October 2008
Avian Influenza, A six months experience, Tuesday 21 October 2008