Killing poultry for disease control

Practical experience in The Netherlands

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2003: major HPAI outbreak:
- Laying hens and turkey
- 30 million birds killed
- 1242 farms

Methods:
- CO\textsubscript{2} in mobile containers
- Electrocution lines
- CO\textsubscript{2} whole house gassing (pre-heated and cold)
- CO whole house gassing

2016: medium HPAI outbreak
- Ducks and laying hens
- 717 thousand birds killed
- 19 farms

Methods:
- CO\textsubscript{2} whole house gassing (pre-heated)
- CO\textsubscript{2} in big bags
## Differences between 2013 and 2016

<table>
<thead>
<tr>
<th>2003</th>
<th>2016</th>
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<tr>
<td>- There was no contingency plan that included different killing methods</td>
<td>- Contingency plan including killing methods available.</td>
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<td>- No standby contracts for HPAI outbreaks</td>
<td>- Standby contracts for whole house and container gassing</td>
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<td>- Outbreak was in the two most dense poultry areas in The Netherlands</td>
<td>- Outbreak spread over less dense poultry areas</td>
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Contingency plan

- Suspicious number of death on farm must be reported and followed by screening.
- No transports from and to the farm
- HPAI confirmed → standstill in restricted area
- Crisis team in action (competent authorities
- Standby companies in action
- Farm closed, biosecurity measures
- animals are killed on farm
Contracted party

- In case of a crisis present on the farm in 4 hours
- Action plan including required conditions.
  - (Gas concentration, temperature, timescale, reporting of results, ......)
- Responsible for equipment and personnel (numbers, quality, training, ...).
- Responsible for animal welfare
Applied killing methods (2016)

- Whole house gassing with pre-heated CO₂
- CO₂ in big bags
An independent Animal Welfare Advisory Committee observes during eradication actions and will give their opinion and advice on animal welfare issues.

1. Independ opinion on animal welfare issues during disease control action
2. Advice on possible improvements.
Some infield experiences (2016 HPAI)

- First time that AI started mainly in ducks
- 240,000 ducks killed over 23 housings
- Age from 4 days old till 7 weeks old.
- 13 whole house gasings and 10 container gasings

1) All whole house gasings without animal welfare issues
2) Issues with container gassing during crowding and handling the birds.

Advice: explore if gas-filled foam can be an option for killing ducks in semi open buildings.
Some infield experiences (2016 HPAI)

- Animal trade company holding 6000 birds in inside and outside aivaries, on hard surface and ponds.
- Large variety of different breeds of ducks, chicken, geese, quails, crane, songbirds,.....
- Birds were killed in CO$_2$ filled bigbags, songbirds in small gas filled bags.

1) Catching and handling of the different species is challenging.

2) All birds species react in the same way to high CO$_2$ levels.
Thank you