Killing of animals for disease control

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Acknowledgments
Overview

• Aim of killing for disease control
  – Why, how and when
• Contingency planning
• Methods: traditional / novel / improvements
• Developments in the EU / Ethics / Human welfare
• Conclusions
Aim of killing for disease control

Why?
How?
When?
Aim – Why?

Prevent
- disease spread within susceptible animal population

Remove
- infected animals - suffering
- animals at high risk – prevention

Maintain
- Sustainable food chain
- Health status
- Animal welfare
- Human health and welfare (Zoonoses)
Aim – Why?
Suffering / prevention – 5 freedoms

- Hunger and Thirst
- Discomfort
- Pain, Injury or Disease
- Fear and Distress
- Express Normal Behaviour
Aim - How?

• Most **humane** way available
  – Timeliness
  – Logistics
  – Available resources
  – Health and safety – for people and the environment (biosecurity)
Aim – How?

Preparation

Preparation

Preparation
### Aim – When?

<table>
<thead>
<tr>
<th></th>
<th>Highly infectious localised disease</th>
<th>Highly infectious localised disease</th>
<th>Highly infectious widely spread disease</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Very quickly</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slow / medium pace</td>
<td>Non infectious / degenerative diseases - euthanasia</td>
<td>Non infectious / contamination / degenerative diseases - thinning</td>
<td>Widespread non infectious / contamination incidents</td>
</tr>
<tr>
<td>Individual animals</td>
<td>Small number of animals (herds)</td>
<td>Large number of animals (zones)</td>
<td></td>
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</tbody>
</table>
Animals slaughtered for disease control and welfare purposes

Source: National Audit Office: The 2001 Outbreak of Foot and Mouth Disease
Contingency planning

Prevent
Remove
Maintain
Contingency plan

- Equipment
- Methods
- Timeliness
- Logistics
- Stakeholder engagement
- Training: slaughtermen and supervisors
- Media and communications

Animal welfare

Courtesy of Troy Gibson, RVC
Contingency plan

- Effective disease control
- Protect human health
- Maintain animal welfare

Prevent  Remove  Maintain
Contingency plan – Responsibilities Pie

- Industry / Animal keepers
- Government Operational Delivery
- Government Policy Delivery
- Voluntary Sector
- Members of the public
Contingency plan

- Robust
- Tested and up to date
  - if no disease national / local exercise
- Priorities for field operations
- Supported by resource
- Emergency response
- Levels: civil / national / local
Other applications: Disasters /emergencies

- Contamination incidents
  - Industrial accidents
  - Deliberate acts
- Severe weather
- Natural disasters
- Loss of power / technical issues
- Transport (i.e. no feed)
- Human disease
Stunning / killing methods

- Traditional use
- Room for improvement
- New Developments
Methods

• Humane
  – including animal behaviour and handling
• Efficient
• Practical
• Safe for people and the environment
• Resilient – length of use
• Sustainable – cost / maintenance
Methods – traditional use

- Veterinary drugs (injection / feed / water)
- Maceration
- Captive bolt followed by pithing
- Free bullet
- Electrical stun / electrocution
- Gas
Methods – room for improvement

- Fire fighting foam – asphyxiation
- Skips and waste bins – smothering
- Cervical dislocation - operator fatigue / timings
- Decapitation – time to unconsciousness
- Aversive gases – CO2, exhaust gases (impure CO), cyanide
- Poisonous substances
Methods – new developments

- Gas delivery
  - Whole house / Containerised / Gas filled foam

Methods – new developments

• Gas choices:
  • Ar/CO2 – 80:20 – welding gas
  • CO2 - Controlled progressive injection of CO2 instead of immersion in high aversive concentrations
  • Nitrogen

• Validating concussion on piglets / kids
Methods – new developments

• Study on novel on farm methods for poultry

• Study on polled /horned ewes and rams captive bolt for killing
  – Recommendations on position, velocity and kinetic energy to cause irreversible concussion leading to death, monitoring signs and effects of repeated use.
Methods – new developments

Methods – new developments

Developments in the EU

• Regulation 1099/2009
  – Report depopulation operations
  – Number and species killed
  – Methods used
  – Description of difficulties encountered and solutions to alleviate or minimise animal suffering
  – Derogations from routine welfare slaughter
Ethics and human welfare links

• “Moral duty to protect the welfare of farm animals and prevent unnecessary suffering, including in disasters and emergencies” (FAWC, 2012)

• Human welfare
  – compromised if animal welfare is not protected
  – food security
Conclusions

- Animal Welfare – integral part of contingency plans for disease control killing
- Most **humane** way available:
  - Timeliness
  - Logistics
  - Available resources
- Contingency plans – expand to emergencies other than disease
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3rd OIE conference on Animal Welfare – Implementing the OIE standards – addressing regional expectations

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