

# B-F-C Bird Flu Control



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AND ANIMAL DISEASE CONTROL

## **Depopulation Lessons learned from recent outbreaks**

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# Depopulation

## Two blocks



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- Bio security in the field: lessons learned
- Personal safety issues
- Personal remarks
- Culling techniques
- Depopulation
- What does it cost
- What's new

# Depopulation: Lessons learned and personal experiences



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- Introduction of BFC
- Our philosophy
- Impact of a large scale outbreak for the industry
- Impact on human safety of the field staff and personnel
- How and why things go wrong
- Personal remarks
- The field situation is leading
- Culling techniques: what are the options
- Listing of the current techniques
- Why does it work and why not
- What are the influential factors
- What does it cost
- What is new and what can be expected in the near future
- Summery and questions

# B-F-C Bird Flu Control

## Our Expertise



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- **Animal disease prevention and control**
- **Research and development**
- **Training**
- **Consultancy**

# B-F-C Bird Flu Control

## Philosophy :



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- **Focus on processes, rather than only on culling techniques alone**
- **Critical factors:**
  - **Well-trained organisation**
  - **Using the right technique**
  - **Human safety first**

# The 2003 H7N7 outbreak in Holland and Belgium

## Impact of a large scale outbreak



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- Duration of the actual outbreak: 10 weeks +
- 50 million birds in total were depopulated
- 33% of all the farms were depopulated
- Only the bird owners were compensated
- 25% of the farmers struggled to survive
- Large scale resistance among the population

# “One fit all’ systems do not exist



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- 62% of all the animals were depopulated by large scale whole house gassing (33% of the farms)
- 67% of all the farms were small scale farms, not suitable for large scale depopulation
- No method for backyard farm depopulation was developed

# The impact on staff and personnel according to the RIVM report



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- 4,500 people were in contact with diseased birds
- 2,250 persons (50%) carried antibodies
- 453 people showed symptoms
- 89 people were diseased with H7N7 (3 were not in direct contact with diseased birds)
- Approx. 4,050 family members, relatives and friends carried antibodies
- 1 veterinarian died

I was one of them

# How things go wrong PPE is Personal protection .....?



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# And Asia??



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# Personal protection: Personal remarks



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- Prepare for the obvious
- Field control on the use of PPE and personal safety issues, like the use of cell phones, personal hygiene
- Use the right set of PPE for the job
- Don't ignore the fact that people don't want to use PPE
- Give the right impression yourselves in the field

# Field management preparation: Personal remarks



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- **The only realistic option to prevent a large scale outbreak is: Bring it under control within 48 hours**
- **Normal field preparation takes approx. 576 days**
- **When the crises is there, you have 576 x 5 minutes to get the outbreak under control**
- **So what you prepared for in one day has to work within 5 minutes**
- **Start working on what might possibly go wrong and not only on what the correct procedures are**

# How to avoid mistakes: Examples

- **Problem:** people don't wear their PPE properly
- **Action:** create a red, orange and green zone and put somebody at the gate, responsible for the proper use of the proper PPE
- **Problem:** after 30 minutes, the face mask is full of dust
- **Action:** introduce a break, every 30 minutes for coffee, toilet use and change of face mask



# The field situation is leading..



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- Which and how many farms are going to be handled the next day?
- Are there more farms infected or at risk of infection (direct contacts)?
- What kind of animals have to be culled (broiler/ layer)?
- How many animals are involved?
- How old are the birds (day-old/ 10 weeks/ mature) ?
- What is the average weight of the birds/
- How many tons will have to go for disposal?
- What are the housing conditions (one or more stables/ cages/ free range)?
- Is there electricity (220V/ 360V 16 – 32A) and running water available?
- Who is the owner of the birds?
- How many farm staff and personnel are available during the culling operation?
- What is the exact location of the farm?
- What is the road access like?
- Will it be a day or night operation?

# Depopulation: “do it simple”



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- **Endorse simple answers for obvious questions**
- **Simplicity in logistic and technique prevents unnecessary mistakes: don't use technically advanced and complex culling methods!**

# Culling: What are the options?



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- **Using Carbon Dioxide**
- **Using Carbon Monoxide**
- **Using foam**
- **Using electricity**
- **Using tools**
- **Using the 'what now' method...**

# Carbon Dioxide



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- Whole house gassing
- Container gassing
- Culling bag
- Large gas trucks
- Large bottles
- Bundled bottles
- Single bottles
- Dry ice

# Carbon Dioxide Whole house gassing

- Is there enough CO<sub>2</sub> gas/  
are there enough gas  
tankers available?
- Is there a liquid CO<sub>2</sub>  
vaporizer available?
- Are there trained  
personnel (authorized gas  
engineer) available?
- Is the technique suitable  
for the type of stable/ type  
of bird?
- What will be the cost per  
bird?



Pictures © BFC

# Carbon Dioxide Container gassing



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- Is there a sufficient amount of culling containers available?
- Are there CO2 Gas bundles available?
- Is there electricity (220V) available for gas monitors?
- What will be the cost per bird?



Pictures © BFC

# Question to you: Why do you think this will or will not work?



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# Preferable technique: Culling bag gassing?

- Are there enough culling bags available?
- Is dry ice available?
- What will be the cost per bird?



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# Electricity: Systems in action



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# Electricity some questions



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- Is there an electrocution system available?
- Is it suitable for the type/size of bird?
- Is there electricity (360V/ 32A) available?
- What will be the cost per bird?



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# Other culling options: Example

- The percussion killer
- Are there a small number of birds e.g. under 100?
- Are there sufficient veterinarian staff available?



# The 'what now' option



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**It is too simple!**



# New developments



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- **Culling bag**
- **Fire fighting foam**
- **Gas foam**

# The culling bag system



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- Combined system for culling and carcass disposal
- Perfect for long time storage
- Dry ice, instead of bottled gas
- One time use only
- Complete, all PPE and instructions are included
- Fits in the back of a truck
- Fool proof!



Pictures © BFC

# Fire fighting foam



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- **Effective and simple to use**
- **Rapid deployment**
- **Cost effective**
- **Low personnel involvement**
- **Fits into disposal planning**
- **State of the art technique and yet simple to apply**

# Prepare for the obvious..



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- **Deploy depopulation plans on farm level for large farms**
- **Deploy a comprehensive data management system for medium and small sized farms**
- **Stockpile culling, cleaning and disinfection and personal protection solutions for backyard farms**
- **Deploy a comprehensive training program for local use, based upon clear instructions and simple tasks, focusing on small farms and backyards**

# Gas foam system



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- **Small bottle system, based upon a fire extinguisher**
- **Integrated into a culling bag system**
- **Integrated system**

# Fire fighting foam or gas foam: What are the differences?



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## US foam: (fire fighting foam)

- Small bubble, no gas included
- kills by mechanical hypoxia - occlusion (blocking) the airway
- Large equipment required
- Ideal for broilers
- Less suitable for small quantities

## Foam gas:

- Large bubble, filled with 100% gas
- culling by anaesthetic or inert gas e.g. CO<sub>2</sub>
- All sizes of birds and quantities
- According to the OIE standard on animal welfare

# Gas foam: When will it be ready?



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- Tests are conducted at Wageningen University Research Center, Lelystad
- Beginning of April, 2007 first test results will be available
- Reports will be published after that
- Research partners in the US are open for participation in further development

# Some personal remarks



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- **Depopulation is culling + disposal**
- **Culling starts when disposal is arranged on the spot...**
- **... Culling stops when disposal logistics jams**
- **Concentrate your efforts also on small farms and backyard farming**
- **Contract out culling and disposal for large scale farms to the industry:**
  - **90% of all non- vet tasks are related to culling and disposal**

# Some personal remarks



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- Consider also simple bio-security techniques..
- Compensation scheme for farmers increases involvement and simplifies outbreak management..
- One size does not fit all..
- Take Personal Protection literally..
- The role of the journalists in spreading AI..
- The role of the scientists in spreading confusion under the public and blocking the decision making process(!)..
- The influence of wrong percurement decisions (!)..

# Conclusions:



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**BE PREPARED:  
DON'T BUY WEAPONS IN WAR TIME!**

**Thank you for your patience!**

**Harm Kiezebrink**