Eradication of Viral Haemorrhagic Septicaemia in Danish Aquaculture

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Danish Veterinary and Food Administration

European Fisheries Fund: Denmark and EU invests in sustainable fisheries
Freshwater fish farms
Conventional earth pond fish farm
Modern recirculation fish farm
Marine fish farms

VHS eradication
Eradication of Viral Haemorrhagic Septicaemia in Danish Aquaculture

• Initiated in 1960’ies by the fish farmers as a voluntary programme
• Danish Veterinary and Food Administration prepared the legislative basis and controls for the programme during 1970’ies
• All costs for the eradication – culling, fallowing and cleaning and disinfection - paid by individual fish farmer
• Programme continued until 2009 where final measures were initiated
VHS outbreak
Clinical signs of VHS
# Pathogenicity – disease spread

<table>
<thead>
<tr>
<th></th>
<th>Incubation phase</th>
<th>Disease phase</th>
<th>Convalescence - phase</th>
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<tbody>
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<td>Virus detection</td>
<td>Virus multiplication</td>
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<td>Duration</td>
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<td>Field conditions</td>
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**VHS eradication**
Duration of incubation phase for different contamination levels

Virus concentration (PFU/ml)

Virus concentration (PFU/ml)

VHS eradication
Incubation phase

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VHS eradication
Disease phase

- 15°: 2 weeks
- 10°: 3 weeks
- 5°: 6 weeks

Weeks
### Eradication in large river systems

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Eradication in small river systems

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Directive 91/67
Commission decision 2002/304

- Approved zones and farms
- Non-approved zone obtained status as a programme zone for a period of 10 years
- The aim is to obtain VHS-free status for the whole Danish territory
- National legislation allowed to regulate control and eradication of VHS in non-approved zones
Handling of VHS outbreaks

- Removal of all fish and gametes (slaughter and culling)
- Cleaning and disinfection
- Fallowing
- Restocking with healthy fish
Disinfection of earth pond
VHS eradication in DK
VHS status 2008

- EU approved VHS free
- Free from VHS > 10 år
- Free from VHS < 10 år
- Infected farms
Programme for final VHS-eradication 2009-2013

• Application for an eradication-programme, may 2008.
• Approved autumn 2008
• Funded by the European Fisheries Fund after national priority
• Order 216, of March 23, 2009: ”Order on specific measures and compensation in connection with eradication of VHS”
• No VHS infected fish in Denmark by 1April 2009
Structure of the VHS eradication programme

• **Eradication measures year 2009-13:**
  • Mandatory immediate stamping out
  • Valuation and compensation of the value of fish
  • Sanitary slaughter of healthy fish
  • Cleaning, disinfection and production stop are carried by the fish farmers
VHS eradication zone for EU funded programme
Structure of the VHS eradication programme

• Preventing measures - year 2009:
  • Main fallowing of 7 (6) brackish water farms (two years)
  • Auxiliary fallowing of 19 fresh water farms (six weeks)
  • Removal of wild living rainbow trout in high risk watercourses by electro-fishery
  • “With assistance of cormorants”
Fallowing of risk farms in 2009
Structure of the VHS eradication programme

- Preventing measures - year 2010:
  - Main fallowing of 6 brackish water farms (two years)
  - Auxiliary fallowing of 13 fresh water farms (six weeks)
  - Removal of wild living rainbow trout in high risk watercourses by electro-fishery + after flooding
Fallowing of risk farms in 2010
Budget

- Total budget 48.5 million DKK = 6.5 million €
- 2009: 2.1 million €
- 2010: 2.1 million €
- 2011: 1.1 million €
- 2012: 0.6 million €
- 2013: 0.6 million €

Fallowing and compensation

Compensation
Compensation

- Main fallowing: 0.33 mill € pr year (0.33 € pr kg feed)
- Auxiliary fallowing: 0.70 mill € pr year (Max. 0.33 € pr kg feed)
- Removal of wild living rainbow trout: 0.01 mill. €
Background for the success

• Favourable epidemic situation
• Declared wish from the industry
• Financial support
• Preventive measures
• Immediate eradication is mandatory!
Thank you for your attention