ANIMAL HEALTH in CROATIA
with emphasis on CSF and other trade relevant animal diseases and zoonosis

Veterinary Directorate - MA
April 3, 2012
Content

- CSF
- Bovine tuberculosis
- Brucelosis in cattle
- Brucelosis in sheep and goats
- Enzootic bovine leucosis
- Rabies
## Animal population structure

<table>
<thead>
<tr>
<th>Animal Type</th>
<th>Herds</th>
<th>Animals</th>
<th>Average herd size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>39.761</td>
<td>496.143</td>
<td>12</td>
</tr>
<tr>
<td>Swine</td>
<td>95.136</td>
<td>1,526,692</td>
<td>16</td>
</tr>
<tr>
<td>Ovine</td>
<td>14.151</td>
<td>550.990</td>
<td>39</td>
</tr>
<tr>
<td>Caprine</td>
<td>2.176</td>
<td>47.228</td>
<td>22</td>
</tr>
<tr>
<td>Ovine &amp; Caprine (mixed)</td>
<td>1.133</td>
<td>83.847</td>
<td>74</td>
</tr>
<tr>
<td>Horses</td>
<td>3.849</td>
<td>20.135</td>
<td>5</td>
</tr>
<tr>
<td>Poultry</td>
<td>88784</td>
<td>11,115,867</td>
<td></td>
</tr>
</tbody>
</table>

Source: HR Farm database 032012
CSF in domestic pigs

- CSF preventive vaccination prohibited from January 1, 2005
- No evidence of CSF virus circulation in domestic pigs since March 2008
- Croatia is free of CSF in domestic pigs, without vaccination
- CSF surveillance program has been in place
  - domestic pigs
  - wild boars
2006: 91 outbreaks (4 counties)
2007: 131 outbreaks (11 counties)
CSFV typed in EU reference laboratory – subtype 2.3
CSF surveillance in domestic pigs

Components

- **Awareness**: Obligation of keeper to notify suspicion of an infectious disease (e.g. clinical disease, mortalities)
- **Pathomorphological examination** of dead pigs
- **Check of the implementation of biosecurity measures** (375 farms randomly selected from the list of farms where implementation of biosecurity measures is not adequate)
- **Virological testing** of organ and blood samples according to the Diagnostic manual (suspicion, atb. treatment fails)
- **Serological testing (1)** – randomly selected farms, detection of CSF seroconversion if it is present on at least 1% farms (95% CI)
  - 202 Commercial fattening pig farms keeping >100 pigs (0.2 prev.detect at farm level, 95% CI)
  - 201 farms keeping 5 or more breeding sows (0.1 prev.detect at farm level, 95% CI)
- **Serological testing (2)**
  - At risk areas (SM, VS and KA county)
    - In selected villages in the vicinity of HG where seropositive WB were found, all farms keeping more than 5 pigs (0.1 prev.detect at farm level, 95% CI)
CSF sero-surveillance in domestic pigs in 2011

- CSF sero surveillance (all pig holdings with >5 pigs)
  - 20075 blood samples/
    2373 farms / 134 villages

- CSF sero surveillance on randomly selected commercial pig farms
  - 5228 blood samples / 427 farms

- CSF ruled out
  - 74 holdings

Legend

CSF surveillance of domestic pigs in at risk areas in 2011
CSF serological testing of domestic pigs

AbELISA

Ab-Positive
Wild boar population density

- **Estimated number**
  - ~ 52,760 wild boars *(the peak of hunting season)*
  - ~ 27,000 *(at the end of hunting season)*

- **Hunting activities**
  - 1065 hunting grounds *(HG)*
  - ~ 25,500 hunting bag *(2010/2011 hunting season)*

*source: Hunting Directorate of MA*

Map: Christoph Staubach, FLI; Germany
Objectives of CSF surveillance in wild boar

- **Objective No1**
  - Detection of CSF infection at a specific prevalence
  - Estimation of CSF infection at a specific prevalence

- **Objective No2**
  - Implementation of informed risk reduction measures (e.g. prevention of CSF virus introduction from wild to domestic pigs)

- **Objective No3**
  - Supported claims for freedom from CSF infection in the whole country or part of the country
Objectives of CSF surveillance in wild boar (HS 2011/12)

- **Area Status 1**
  - estimate CSF seroprevalence (all hunted WB subject to serological and virological investigation – blood and tonsils)

- **Area Status 2**
  - detect CSF seroprevalence at 2% level (serological and virological testing – blood and spleen)

- **Area Status 3**
  - detect CSF seroprevalence at 5% level (serological testing)
Sample description by percentage of each of age category of wild boar

Frequency of sampling of wild boar population for CSF testing from 2007 to 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Total samples</th>
<th>Total sero-tested</th>
<th>Total seropos.</th>
<th>Not adequate samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2008</td>
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<td>2009</td>
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<tr>
<td>2011</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

< 6 months | 6 months to 1 year | 1 to 2 years | > 2 years

- 2007: < 6 months: 10, 6 months to 1 year: 20, 1 to 2 years: 30, > 2 years: 40
- 2008: < 6 months: 15, 6 months to 1 year: 25, 1 to 2 years: 35, > 2 years: 50
- 2009: < 6 months: 20, 6 months to 1 year: 30, 1 to 2 years: 40, > 2 years: 60
- 2010: < 6 months: 25, 6 months to 1 year: 35, 1 to 2 years: 50, > 2 years: 70
- 2011: < 6 months: 30, 6 months to 1 year: 40, 1 to 2 years: 60, > 2 years: 80
- 2012: < 6 months: 35, 6 months to 1 year: 45, 1 to 2 years: 65, > 2 years: 90
CSF serological testing of wild boar population (2007 to 2012)
Sampling density in Sisak-moslavina county (2007 to 2012) and density of CSF seropositive wild boar

Sampling density in Vukovar-srijem county (2007 to 2012) and density of seropositive wild boar
Sampling density in Karlovac county (2007 to 2012) and density of seropositive wild boar

![Graph showing sampling density and seropositive wild boar density from 2007 to 2012.](image-url)

- **Sero-tested:**
  - 2007: 27
  - 2008: 418
  - 2009: 450
  - 2010: 1047
  - 2011: 1523
  - 2012: 409

- **Sero-pos:**
  - 2007: 0
  - 2008: 0
  - 2009: 1
  - 2010: 3
  - 2011: 1
  - 2012: 3
Sampling density in Sibenik-knin county (2007 to 2012) and density of seropositive wild boar

Sampling density in Split-dalmacija county (2007 to 2012)
CSF virological testing of wild boars

- **Q-RT-PCR**: The number of samples tested using Q-RT-PCR technology.
- **Q-RT-PCR-Positive**: The number of positive samples among those tested.

The trend shows an increase in the number of samples tested and a decrease in positive samples from 2007 to 2011.
Spatial distribution of CSF virological positive samples in 2007 and 2008

County

PCR results

* positive
* negative
Spatial distribution of CSF seropositive wild boar in hunting season 2006/2007

Spatial distribution of CSF seropositive wild boar in hunting season 2007/2008

Legend
- Autocesta A3
- county
- J_more
- 1 Dot = 1
- PostoSeroP
- Drzava
Spatial density of wild boar sampled in hunting season 2008/2009 and distribution of CSF seropositives

Legend
- <all other values>
- Autocesta A3
- 1 Dot = 1
- PostoSeroP
- county
- 1 Dot = 1
- CSFse1112
- Drzava

Spatial density of wild boar sampled in hunting season 2009/2010 and distribution of CSF seropositives

Legend
- <all other values>
- Autocesta A3
- 1 Dot = 1
- PostoSeroP
- county
- 1 Dot = 1
- CSFse1112
- Drzava
Spatial density of wild boar sampled in hunting season 2010/2011 and distribution of CSF seropositives

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- PostoSeroP
- county
  - 1 Dot = 1
  - CSFse1112
  - Drzava

Spatial density of wild boar sampled in hunting season 2011/2012 and distribution of CSF seropositives

Legend
- <all other values>
- Autocesta A3
- 1 Dot = 1
- PostoSeroP
- county
  - 1 Dot = 1
  - CSFse1112
  - Drzava
Wild boar density in HGs III/38 and XVI/11

Legend

HG III-39 and XVI/11
<all other values>
Sampling density and density of seropositive wild boar in HG XVI/11 (2007/2012)

Sampling density and density of seropositive wild boar in HG III/38 (2007 to 2012)
Percentages of seropositive wild boars in HG XVI/11 (hunting seasons from 2007 to 2012)

Percentages of seropositive wild boars in HG III/38 (hunting seasons from 2007 to 2012)
Percentages of seropositive wild boar per age category in HG XVI/11

Percentages of seropositive wild boar per age category in HG III/38
Movement of domestic pigs: Additional measures (Order OG 11/11, amended with OG 135/11)

- **Clinical examin. and virological testing** prior movement to a holding outside SM, KA and VS counties (the Areas)
- **Clinical examin.** prior movement directly to a slaughterhouse
- **Clinical examin.** on 1417 holdings
- **Veterinary check** on holding 2 x per year (on 223 holdings)
- **Pigs grazed on pasture**
  - prohibited to be moved outside the Areas
  - must be subject to clinical check and virological testing prior movement within the Area

Areas where domestic pigs are subject to clinical / virological testing prior movement

Legend

- At-risk-areas
- Država
Additional measures

- SM, VS and KA counties
  - biosecurity on pig establishments (pigs must be confined / no contact with wild boar)
  - in HGs under restriction due to finding of seropositive wild boars, carcases of shot wild boar must be kept within the HG until the results of dg. testing are available
    - In case of lack of storing capacity, carcases must be safely disposed under official supervision
  - carcases of wild boar shot in HGs where no seropositive wildboar were found, may not be moved outside the counties prior negative test results is available
  - holders of hunting rights must keep records on all wild boar shot
  - holders of hunting rights must keep records on all wild boar found dead

- Whole of the country
  - Pig movement is subject to issuing of AH certificate
  - All pig holdings trading with pigs are subject to veterinary check at least 30 days prior movement
CSF virological testing of domestic pigs

- Q-RT-PCR
- Q-RT-PCR-Positive

2007: 280
2008: 21
2009: 0
2010: 0
2011: 0

Graph shows a significant increase in Q-RT-PCR-positive cases in 2011 compared to previous years.
Bovine tuberculosis

- Test and slaughter policy since 1947
- Certification of herds BTB officially free according to the 64/432/EEC since 2010
- Results of testing in 2011
  - 0.44 % positive herds
  - 0.06 % positive cattle

Number of cattle herds and percentage of BTB officially free herds per county

Legend
- county
- Total Bovherds
  - 315 - 615
  - 616 - 1305
  - 1306 - 2435
  - 2436 - 3682
  - 3683 - 4782
Brucellosis

Brucellosis (*B. abortus*)
- **the last case in 1965**
- Annual order (Official Gazette No 17/2012):
  - to rule out brucellosis (abortions)
- **testing according to the CD 64/432/EEC (to grant BB officially free status)** initiated 2011
  - 4833 herds /109000 catte (3 milk + 1 blood sample)
  - **testing completed**
  - 34928 herds / 145000 cattle (2 blood samples, **first in 2011 completed** and **second in 2012**)
  - all negative

Brucellosis (*B. melitensis*)
- Annual Order (Official Gazette No 17/2012):
  - to rule out brucellosis (abortions)
  - rams and billy goats used for the production of semen for AI or natural mating, once a year
- **Testing according to the CD 91/68/EEC to certify ovine and caprine herds officially free (B. melitensis) to start in Sept 2012**
  - herds placing milk and milk products on the market

- **2010**
  - 6 outbreaks /441 sheep and goats / in 2 counties /

- **2011**
  - 0 positives
Bovine enzootic leukosis (EBL)

- Testing according to the CD 64/432/EC initiated in 2011 (1st testing in 2011)
  - cow herds (>10 cows)
    - 1st (group milk sample)
    - 2nd (blood sample)
  - cow herds (<10 cows)
    - 2 blood samples
- In 2011
  - 235000 cattle tested
    - 0.8 % positive herds
    - 0.5 % positive cattle
- Policy as regards EBL testing under revision
- Annual Order (Official Gazette No 17/2012):
  - All cattle older than 24 months must be tested prior movement, accept in case when cattle are moved to the slaughterhouse directly or via assembly centre.
  - The process of testing of cattle for granting EBL officially free status is at the moment on a voluntary basis, meaning that the process it to be initiated by the keeper.
Rabies testing from 1999 to 2011
Frequency of rabies cases in wild and domestic animals

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Positive Animals</th>
<th>Fox</th>
<th>Domestic Animals</th>
<th>Other Wildlife</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>917</td>
<td>840</td>
<td>47</td>
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</tr>
<tr>
<td>2001</td>
<td>459</td>
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<tr>
<td>2006</td>
<td>545</td>
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<tr>
<td>2007</td>
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<td>2009</td>
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<tr>
<td>2010</td>
<td>657</td>
<td>584</td>
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<td>16</td>
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<tr>
<td>2011</td>
<td>381</td>
<td>324</td>
<td>35</td>
<td>29</td>
</tr>
</tbody>
</table>
Oral vaccination of foxes – 2011 to 2014

- **Supported by EU (IPA 2008 and IPA 2010)**
  - **IPA 2008** HR2008-03-12-08
    - “Support to animal disease control/eradication in the Republic of Croatia” from 2011 to 2012 (4.15 mil. €)
  - **IPA 2010**
    - “Continued Support to animal disease control/eradication in the Republic of Croatia” from 2013 to 2014 (4.17 mil. €)
2 campaigns – spring and autumn
1,750,000 vaccine baits distributed (875,000 per campaign)
16 counties covered
Area covered 35,000 km² (grey)
Bait density – 25 baits per square km
Atenuated vaccine – Lysvulpen
monitoring
2012
2 distribution campaigns
21 county
25 baits/km2
Total - 2,827,100 baits
- monitoring
THANK YOU
FOR YOUR ATTENTION!