

# **Information about epidemiological situation in Hungary regarding CSF in wild boars**

**SCoFcAH  
4 April 2011  
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**Animal Health and Animal Welfare Directorate  
Central Agricultural Office, Hungary**

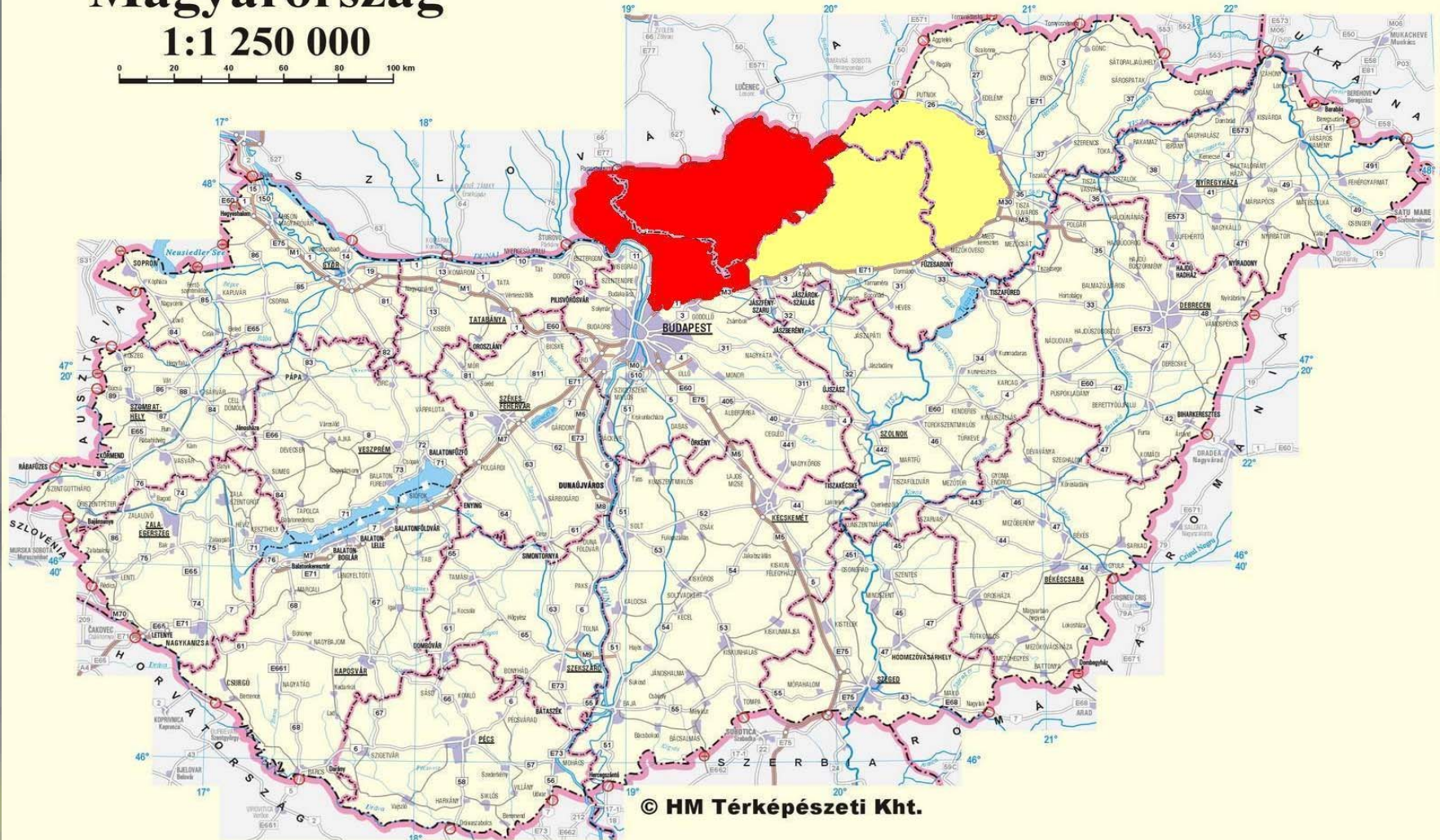
## CSF cases in wild boar in Nógrád county and specified part of Pest county

- In Nógrád county the first case was confirmed on 22 January 2007 by NRL
- In the specified part of Pest county the first case was confirmed 10 December 2007 (after the same measures has been applied as in Nógrád county)
- Until now 268 cases were found in wild boars, 120 cases in Nógrád county, and 148 cases in the specified part of Pest county
- The last case was on 30 October 2009 in Pest county

# The Map of the CSF infected area

## Magyarország

1:1 250 000



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# Comparison of the CSF cases in 2007, 2008, 2009 and 2010 (calendar year)

	2007	2008	2009	2010
January	5	82	9	0
February	0	18	3	0
March	0	6	1	0
April	0	3	2	0
May	2	23	2	0
June	8	12	5	0
July	5	10	0	0
August	6	6	4	0
September	1	8	0	0
October	2	6	1	0
November	6	11	0	0
December	16	5	0	0
<b>Total</b>	<b>51</b>	<b>190</b>	<b>27</b>	<b>0</b>

# Comparison of the CSF cases in 2007, 2008 and 2009 (calendar year)

Month	2007		2008		2009	
	Nógrád	Pest	Nógrád	Pest	Nógrád	Pest
1.	5	0	35	47	0	9
2.	0	0	9	9	1	2
3.	0	0	3	3	0	1
4.	0	0	1	2	0	2
5.	2	0	17	6	0	2
6.	8	0	4	8	0	5
7.	5	0	4	6	0	0
8.	6	0	4	2	0	4
9.	1	0	2	6	0	0
10.	2	0	0	6	0	1
11.	6	0	1	10	0	0
12.	4	12	0	5	0	0
<b>Total</b>	<b>39</b>	<b>12</b>	<b>80</b>	<b>110</b>	<b>1</b>	<b>26</b>

## Comparison of the CSF cases in 2006/2007, 2007/2008, 2008/2009 and 2009/2010 hunting years

Month	2006/2007		2007/2008		2008/2009		2009/2010	
	Nógrád	Pest	Nógrád	Pest	Nógrád	Pest	Nóg.	Pes.
3.	0	0	0	0	3	3	0	1
4.	0	0	0	0	1	2	0	2
5.	0	0	2	0	17	6	0	2
6.	0	0	8	0	4	8	0	5
7.	0	0	5	0	4	6	0	0
8.	0	0	6	0	4	2	0	4
9.	0	0	1	0	2	6	0	0
10.	0	0	2	0	0	6	0	1
11.	0	0	6	0	1	10	0	0
12	0	0	4	12	0	5	0	0
1.	5	0	35	47	0	9	0	0
2.	0	0	9	9	1	2	0	0
<b>Total</b>	<b>5</b>	<b>0</b>	<b>78</b>	<b>68</b>	<b>37</b>	<b>65</b>	<b>0</b>	<b>15</b>



# CSF Surveillance in Wild boars

## CSF free area (excluding surveillance zone)

- In each county the minimum sample size have been determined taking into consideration the point H of Chapter IV in CSF Diagnostic Manual.
- Samples: clotted blood and tonsil
- Antibody ELISA from each blood sample sent to the laboratory
- **Virology (PCR) only from seropositive animals and from every second wild boar has been shot within 3 km radius of the place where the seropositive one was shot during the period of maximum 42 days after the time of shot of the seropositive one.**

# CSF Surveillance in Wild boars

## Infected area

There are **two parallel rules** regarding targeted surveillance:

- The first has been effective since **2007: all shot wild boars have to be tested serologically (antibody ELISA) and virologically (PCR).**
- The second one is introduced as part of the Action plan for the **recommendations of the FVO Mission** of 2008: **sampling units** and a **minimum sample size for each sampling units** has been determined on the basis of the point H of Chapter IV in CSF Diagnostic Manual . (If more wild boars are shot than the minimum sample size the first rule must be used)

# CSF Surveillance in Wild boars

## Infected area (continuation)

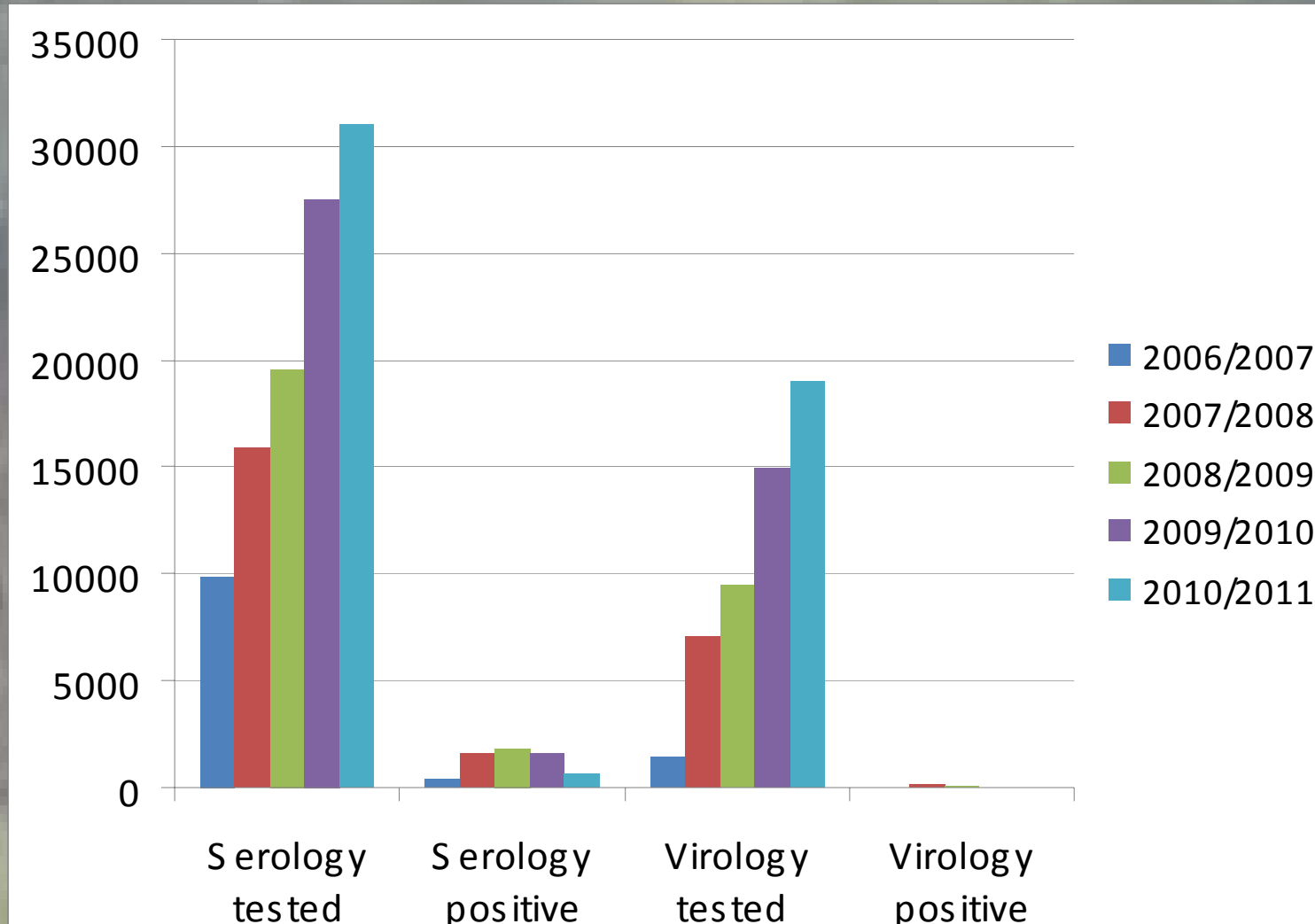
- Samples: clotted blood and tonsil
- The **dispatch of the meat of wild boars** and meat products containing such meat may be authorised according to **Article 1, paragraph (2) of Commission Decision 2010/354/EU**.  
(after **negative virology (and serology) and prior approval** of the competent authority of destination)
- All wild boars found dead has to be tested virologically

# CSF Surveillance in Wild boars

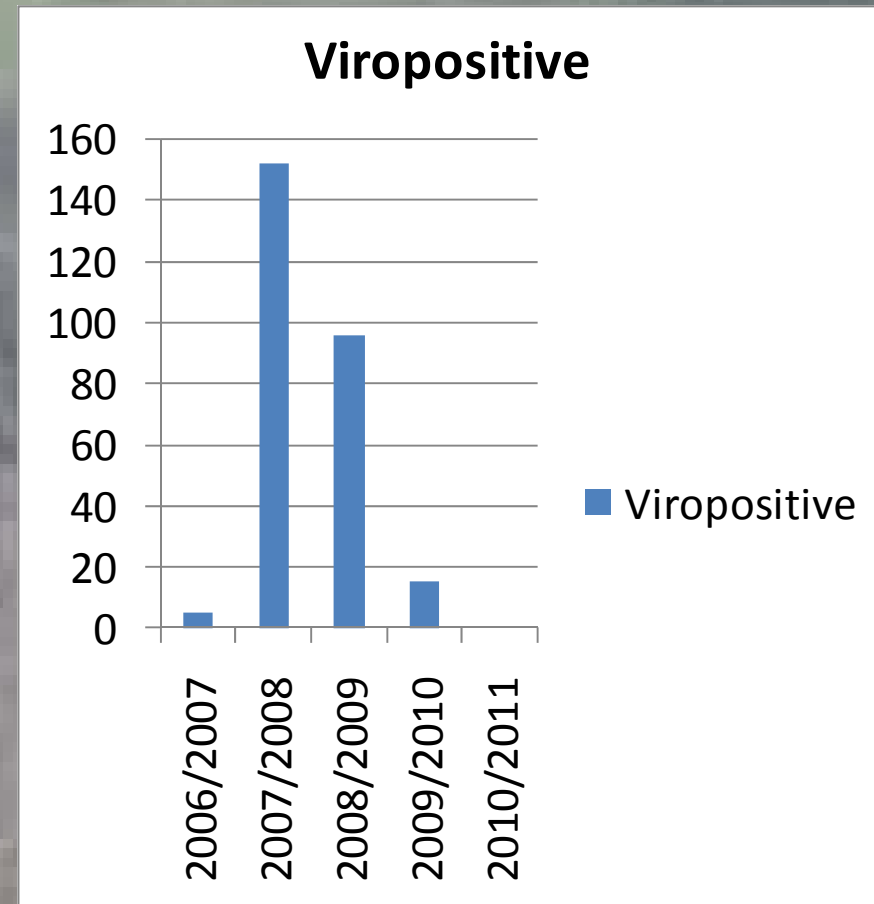
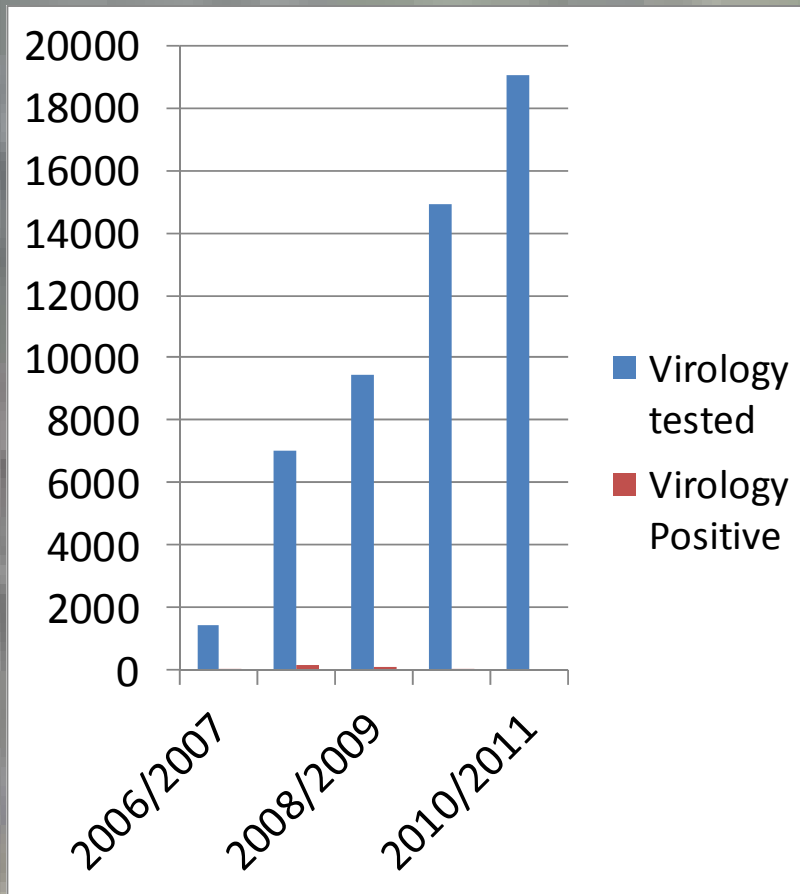
## Surveillance zone

- Around the infected are a surveillance zone has been established. It is a 10 km wide belt, excluding the south part of Pest county, where about 40 km wide belt counted from the highway M3 (E71) in south direction.
- **All shot wild boars has to be tested serologically (antibody ELISA) and virologically (PCR)**
- Samples: clotted blood and tonsil

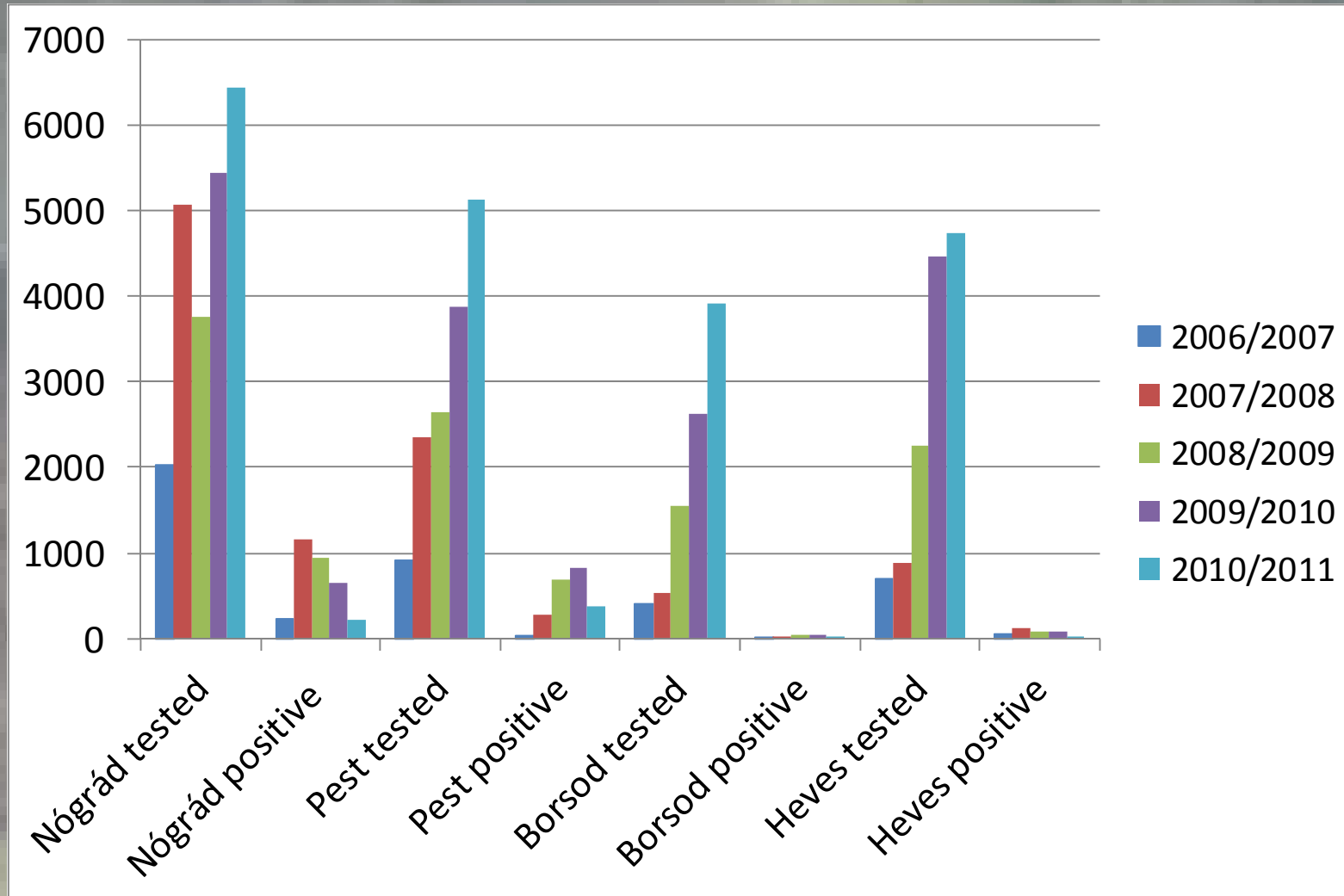
# Surveillance in wild boar during 2006/2007, 2007/2008, 2008/2009, 2009/2010 and 2010/2011 hunting years in Hungary



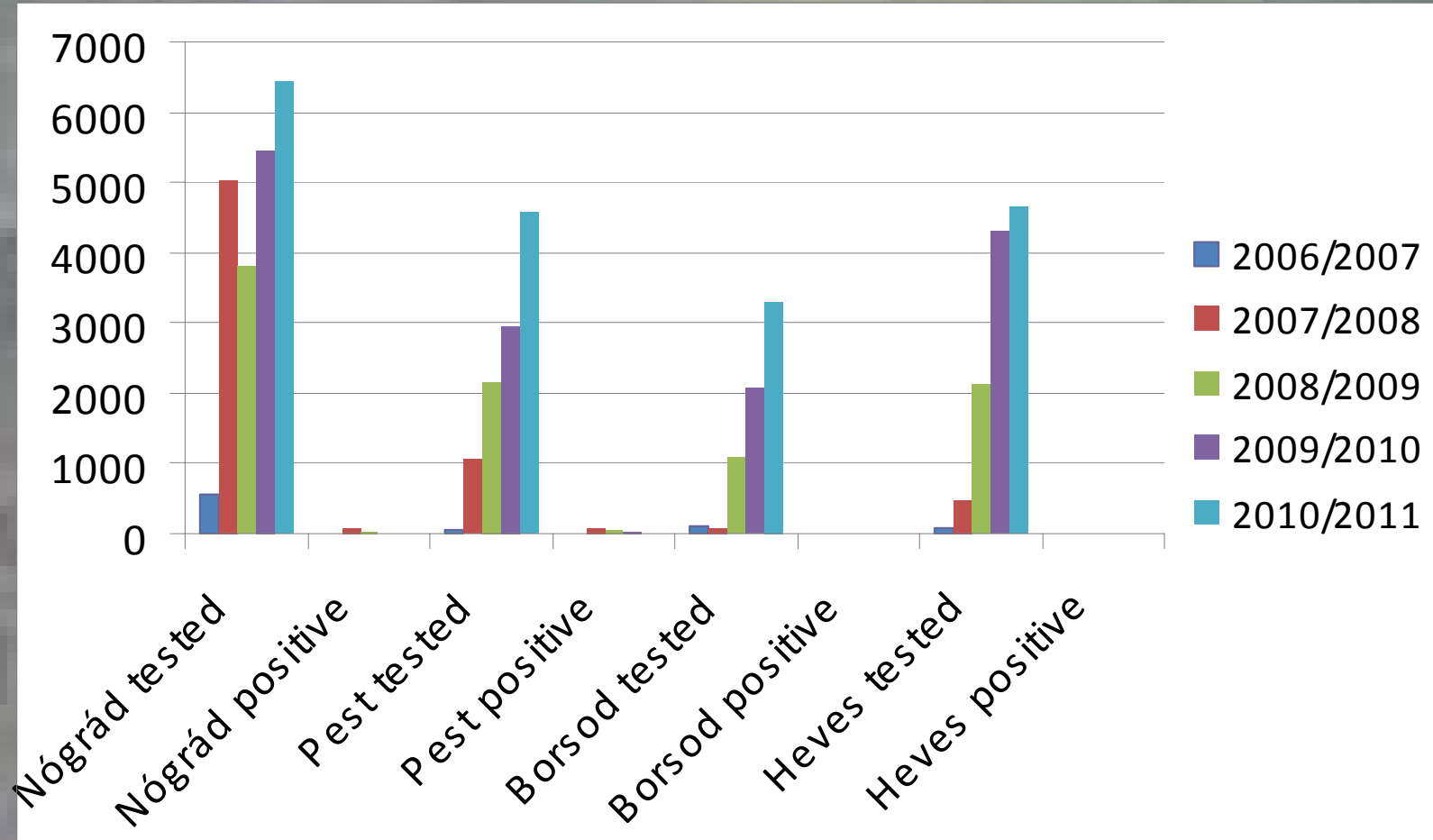
# Virological surveillance in wild boar during 2006/2007, 2007/2008, 2008/2009, 2009/2010 and 2010/2011 hunting years in Hungary



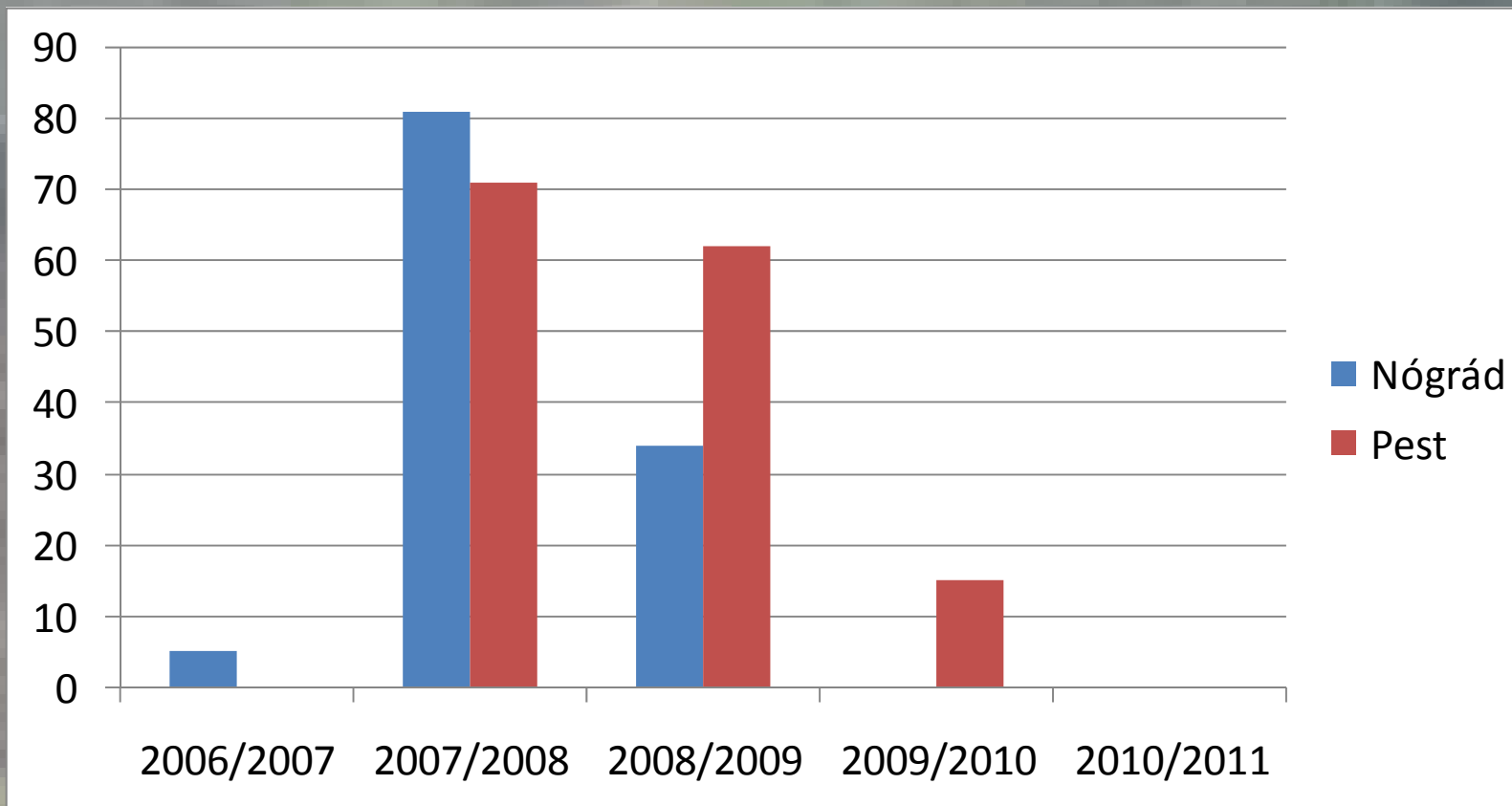
# Serological surveillance in wild boar during 2006/2007, 2007/2008, 2008/2009, 2009/2010 and 2010/2011 hunting years in the whole territory of the 4 affected counties



# Virological surveillance in wild boar during 2006/2007, 2007/2008, 2008/2009, 2009/2010 and 2010/2011 hunting years in the whole territory of the 4 affected counties



# Number of viropositive results in wild boar during 2006/2007, 2007/2008, 2008/2009, 2009/2010 and 2010/2011 hunting years in the whole territory of the 4 counties



**The results of CSF surveillance in wild boars in  
whole territory of Hungary between 01-03-2010  
and 28-02-2011  
Antibody ELISA**

<b>County</b>	<b>Number of tests</b>	<b>Negative</b>	<b>Positive</b>
<i>CSF free counties</i>	10824	10816	8
Affected 4 counties	20231	19579	652
<b><i>Total</i></b>	<b>31055</b>	<b>30395</b>	<b>660</b>

**The results of CSF surveillance in wild boars in whole territory of Hungary between 01-03-2010 and 28-02-2011**  
**Virology (PCR)**

<b>County</b>	<b>Number of tests</b>	<b>Negative</b>	<b>Positive</b>
<i>CSF free counties</i>	68	68	0
Affected 4 counties	18973	18973	0
<b><i>Total</i></b>	<b><i>19041</i></b>	<b><i>19041</i></b>	<b><i>0</i></b>

# The results of CSF surveillance in wild boars in the whole territory of the four affected counties between 01-03-2010 and 28-02-2011

## Antibody ELISA

County	Number of tests	Number of negative	Number of Positive	Positive %
Nógrád	6438	6212	226	3,51 %
Pest	5136	4752	384	7,48 %
Borsod-A-Z	3917	3893	24	0,61 %
Heves	4740	4722	18	0,38 %

# The results of CSF surveillance in wild boars in the whole territory of the four affected counties between 01-03-2010 and 28-02-2011

## Virology (PCR)

County	Estimated number of wild boar County (inf. area)	Number of tests	Number of negative	Number of Positive
Nógrád	3931	6428	6428	0
Pest	6981 (3240)	4576	4576	0
Borsod-A-Z	7086 (1820)	3303	3303	0
Heves	4896 (4784)	4666	4666	0

# Virological examination of wild boars found dead

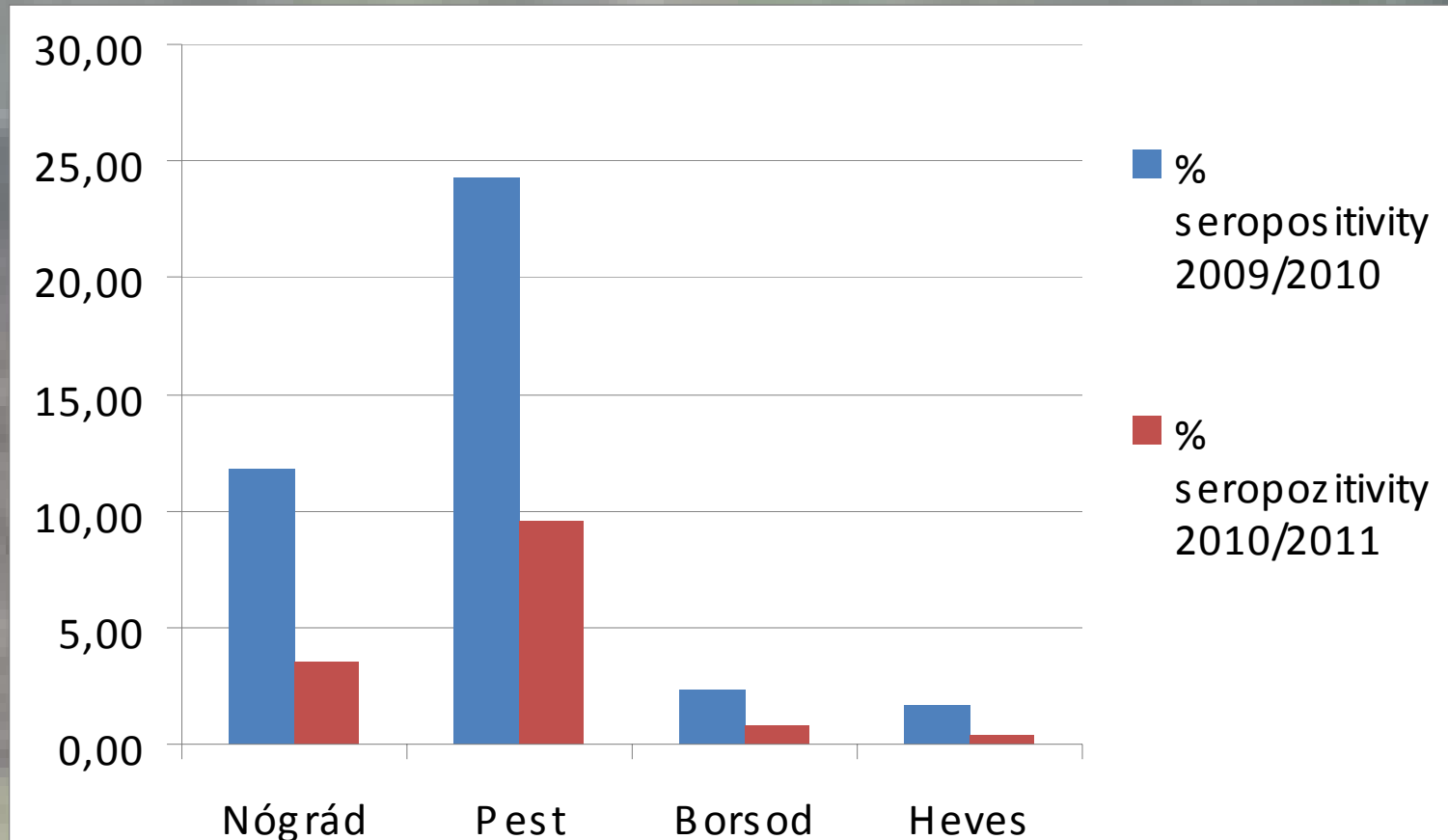
County	2009/2010 hunting year			2010/2011 hunting year		
	Tested	Negative	Positive	Tested	Negative	Positive
Nógrád	27	27	0	23	23	0
Pest	8	8	0	4	4	0
Borsod-A-Z	6	6	0	9	9	0
Heves	11	11	0	6	6	0

Comparison of seropositivity in the infected area during the last (2009/2010) and the current (2010/2011) hunting year  
**Wild boars of all age groups**

Infected Area	2009/2010 hunting year			2010/2011 hunting year		
	Tested	Positive	%	Tested	Positive	%
Nógrád	5440	642	11,80	6438	226	3,51
Pest	3375	819	24,27	3923	377	9,61
Borsod-A-Z	2027	47	2,32	2610	20	0,77
Heves	4313	73	1,69	4696	18	0,38

# Comparison of seropositivity in the infected area during the last (2009/2010) and the current (2010/2011) hunting year

## Wild boars of all age groups

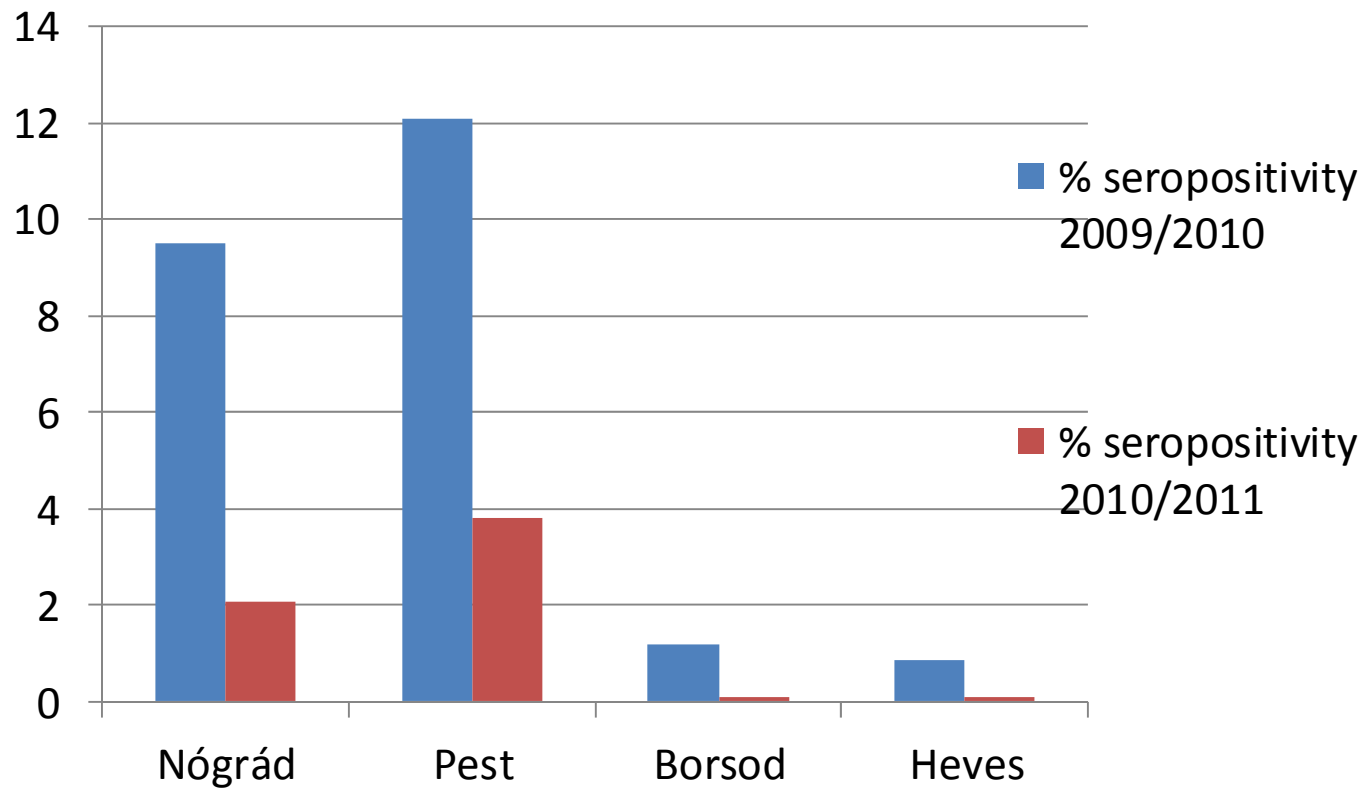


Comparison of seropositivity in the infected area during the last (2009/2010) and the current (2010/2011) hunting year  
**Wild boars under 1 year**

Infected Area	2009/2010 hunting year			2010/2011 hunting year		
	Tested	Positive	%	Tested	Positive	%
Nógrád	1527	145	9,50	2493	52	2,09
Pest	1801	218	12,10	1965	75	3,82
Borsod-A-Z	684	8	1,17	895	1	0,11
Heves	1808	16	0,88	2007	2	0,10

# Comparison of seropositivity in the infected area during the last (2009/2010) and the current (2010/2011) hunting year

## Wild boars under 1 year



# Detailed age groups of CSF seropositive wild boars under 1 year in the infected area

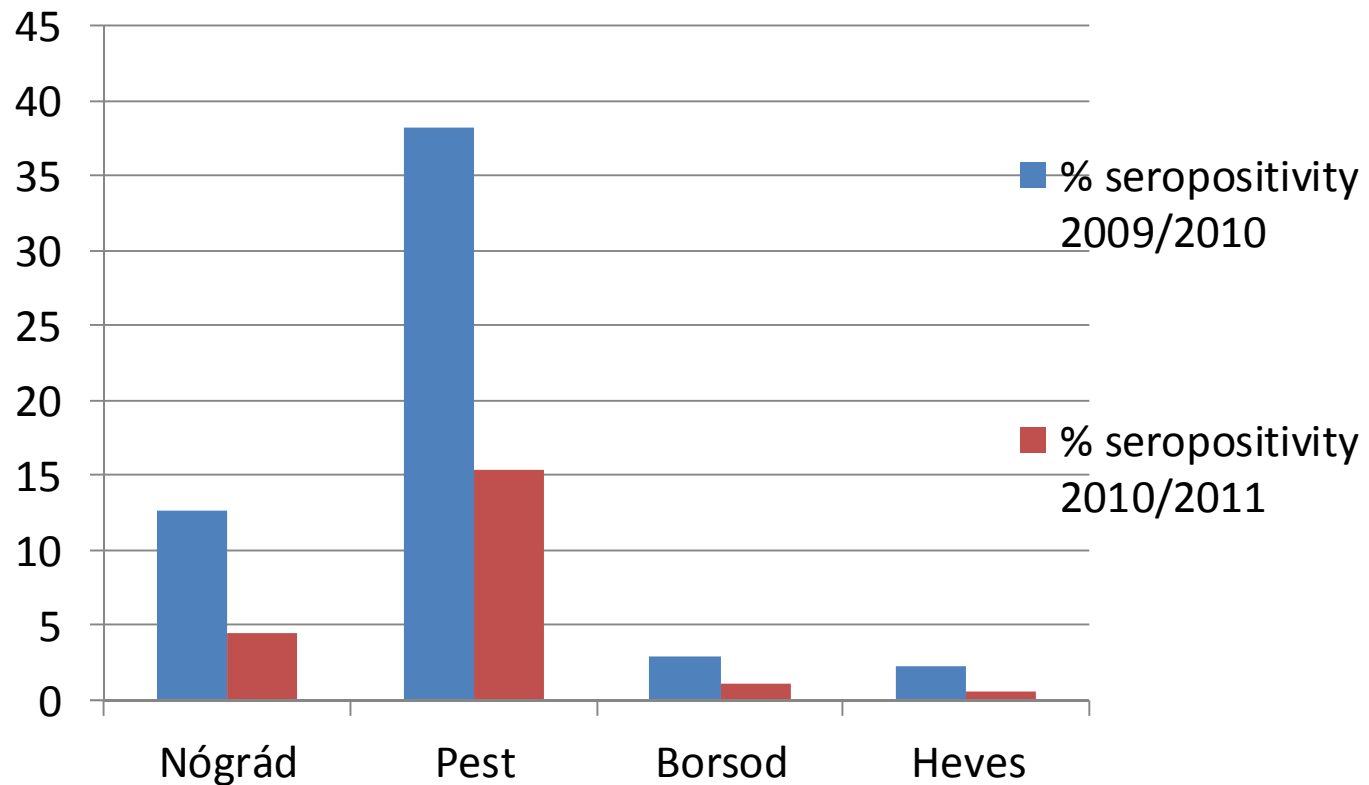
County	No. of wild boars $X \leq 3$ mo.	No. of wild boars $3\text{mo.} < X \leq 6\text{mo.}$	No of wild boars $6\text{mo.} < X \leq 9\text{mo.}$	No of wild boars $9\text{mo} < X \leq 12\text{mo.}$	No. wild boars under 1 year
Nógrád	8 (15,4%)	17 (32,7%)	9 (17,3%)	18 (34,6%)	52 (100%)
Pest	14(18,7 %)	41 (54,7%)	8 (10,7%)	12 (16%)	75 (100%)
Borsod-A-Z	0	0	1 (100%)	0	1 (100%)
Heves	0	0	1 (50%)	1 (50%)	2 (100%)

Comparison of seropositivity in the infected areas during the last (2009/2010) and the current (2010/2011) hunting year  
**Wild boars over 1 year**

Infected Area	2009/2010 hunting year			2010/2011 hunting year		
	Tested	Positive	%	Tested	Positive	%
Nógrád	3913	497	12,70	3945	174	4,41
Pest	1574	601	38,18	1958	302	15,42
Borsod-A-Z	1343	39	2,90	1715	19	1,11
Heves	2505	57	2,28	2689	16	0,60

# Comparison of seropositivity in the infected areas during the last (2009/2010) and the current (2010/2011) hunting year

## Wild boars over 1 year



# Targeted surveillance programme in domestic swine

## Infected Area

### A. In case of large-scale pig holdings:

- **Quarterly in every holding:** epidemiological control examination (including the clinical examination carried out according to the Diagnostic Manual)
- **Half-yearly in every holding: serological testing** (to detect 5% prevalence with 95% confidence)
- Laboratory examination of every reported abortion: fetus (virology) + sow's blood (serology)

# Surveillance programme in domestic swine 2.

## Infected Area

### B. In case of small-scale pig farms:

- **Epidemiological units has to be determined by settlements** (or in case of big settlements by parts of settlements) by the competent County Agricultural Office Food Chain Safety and Animal Health Directorate
- **Half-yearly in every epidemiological unit: clinical examination** (to detect **2% prevalence** with 95% confidence)
- **Half-yearly in every epidemiological unit: serological testing** (to detect **5% prevalence** with 95% confidence)
- **Laboratory examination of every reported abortion: fetus (virology) + sow's blood (serology)**

# Surveillance programme in domestic swine 2.

## Targeted surveillance in the surveillance zone

### A. In case of large-scale pig holdings:

- **Yearly in every holding: serological testing** (to detect **10% prevalence** with 95% confidence)
- Laboratory examination of every reported abortion: fetus (virology) + sow's blood (serology)

### B. In case of small-scale pig farms:

**Epidemiological units has to be determined by settlements** by the competent County Agricultural Office Food Chain Safety and Animal Health Directorate:

- **Half-yearly in every epidemiological unit: serological testing** (to detect **10% prevalence** with 95% confidence)
- Laboratory examination of every reported abortion: fetus (virology) + sow's blood (serology)

# Results of the CSF sero-surveillance in domestic swine

## Infected area- first half of 2010 Small-scale holdings

County	No of epidemio. units	No of holdings	No of pigs	No of tested pigs	Positive
Nógrád	132	1743	4809	2652	0
Pest	49	358	1838	996	0
Borsod-A-Z	71	531	2069	547	1*
Heves	79	842	2833	1370	0
<b>Total</b>	<b>331</b>	<b>3475</b>	<b>11549</b>	<b>5565</b>	<b>1*</b>

\*It was an interference reaction due to Border disease according to the virus neutralisation test. The animal was killed and organs sent to the NRL. Virus isolation and PCR was negative.

# Results of the CSF sero-surveillance in domestic swine

## Infected area- second half of 2010

### Small-scale holdings

County	No of epidemio. units	No of holdings	No of pigs	No of tested pigs	Positive
Nógrád	132	1907	5305	2889	0
Pest	49	358	1811	611	0
Borsod-A-Z	71	523	2155	557	0
Heves	79	748	2414	1136	0
<b>Total</b>	<b>331</b>	<b>3536</b>	<b>11685</b>	<b>5193</b>	<b>0</b>

# Results of the CSF sero-surveillance in domestic swine

## Infected area- first half of 2010

### Large-scale holdings

County	No of holdings	No of pigs	No of tested pigs	Positive
Nógrád	3	15990	307	0
Pest	1	918	132	0
Borsod-A-Z	3	2375	306	1*
Heves	7	16268	646	0
<b>Total</b>	<b>14</b>	<b>35551</b>	<b>1391</b>	<b>1*</b>

\* It is a false positive reaction according to the virus neutralisation test. The affected animal was sampled again and the antibody-ELISA was repeated in the NRL with negative result.

# Results of the CSF sero-surveillance in domestic swine

## Infected area- second half of 2010

### Large-scale holdings

County	No of holdings	No of pigs	No of tested pigs	Positive
Nógrád	3	16045	300	0
Pest	1	900	49	0
Borsod-A-Z	3	2329	251	0
Heves	7	25747	411	0
<b>Total</b>	<b>14</b>	<b>45021</b>	<b>1011</b>	<b>0</b>

# Results of the CSF sero-surveillance in domestic swine

## Surveillance zone - first half of 2010

### Small-scale holdings

County	No of epidemio. units	No of holdings	No of pigs	No of tested pigs	Positive
Pest	73	1414	6556	1154	0
Borsod-A-Z	56	427	1463	394	1*
Heves	20	390	1100	730	0
<b>Total</b>	<b>149</b>	<b>2231</b>	<b>9119</b>	<b>2278</b>	<b>1*</b>

\* It was an interference reaction due to Border disease according to the virus neutralisation test. The animal was killed and organs sent to the NRL. Virus isolation and PCR was negative.

# Results of the CSF sero-surveillance in domestic swine

## Surveillance zone - second half of 2010

### Small-scale holdings

County	No of epidemio. units	No of holdings	No of pigs	No of tested pigs	Positive
Pest	73	1414	6556	679	0
Borsod-A-Z	56	406	1498	363	0
Heves	20	371	1073	847	0
<b>Total</b>	<b>149</b>	<b>2191</b>	<b>9127</b>	<b>1889</b>	<b>0</b>

# Results of the CSF sero-surveillance in domestic swine

Surveillance zone – till 31 December 2010

## Large-scale holdings

County	No of holdings	No of pigs	No of tested pigs	Positive
Pest	6	21331	258	0
Borsod-A-Z	2	26946	112	0
Heves	8	13485	291	0
<b>Total</b>	<b>16</b>	<b>61762</b>	<b>661</b>	<b>0</b>

# Short analysis of the situation

- The last CSF case occurred on 30 October 2009 in the specified part of Pest county, almost one and half years ago
- In Nógrád county the last case was found near to the border of Pest county on 23 February 2009, more than two years ago.
- In domestic pigs there were no CSF cases and the results of the serological surveillance also demonstrated this fact.
- It is clear that the seropositivity of wild boars has been decreased significantly in the 4 affected counties, in all age groups during the 2010/2011 hunting year in comparison with the previous one.

# Short analysis of the situation 2.

- In Borsod-Abaúj-Zemplén and Heves counties CSF cases have not been confirmed and percentage of seropositivity in wild boar is very low. And the number of seropositive wild boars under 1 years is practically negligible.
- During the 2010/2011 hunting year Border disease was confirmed by virus neutralisation (VN) test in case of 19 wild boars given seropositive results during antibody-ELISA test for CSF. In case of another animal the Border disease was confirmed by PCR.
- Bovine Viral Diarrhoea (BVD) was confirmed by VN test in other 8 wild boars given seropositive results during antibody-ELISA test for CSF.

# Laboratory diagnosis of other Pestiviruses

County	Border disease	Bovine Viral Diarrhoea
Nógrád	7	3
Pest	9	4
Borsod-Abaúj-Zemplén	2	1
Heves	2	0
<b>Total</b>	<b>20</b>	<b>8</b>

The further analysis of the epidemiological data shows that the interference reaction due to border disease and BVD may be the reason of seropositive results during antibody-ELISA test and in case of wild boars under 1 year we can calculate with the maternal immunity as well.

# What about the future?

- During the meeting of 4 November 2010 the National CSF Expert Group proposed to lift the measures of infected area in specified part of Borsod-Abaúj-Zemplén county and Heves county after the end of 2010/2011 hunting year, providing the epidemiological situation remains favourable.
- In case of Nógrád county the question must be discussed again in summer of 2011.
- The present of CSF virus in Borsod-Abaúj-Zemplén and Heves counties is excluded according to the available epidemiological data.
- Therefore Hungary would like to lift the measures of infected area in case of specified part of Borsod-Abaúj-Zemplén county and Heves County. We have sent a letter about it to the Commission with detailed epidemiological information.

A photograph of a wild boar in a forest. The boar is dark brown and hairy, standing on a ground covered with fallen leaves and twigs. It is looking down and to the right. The background is a dense forest with many thin tree trunks and some green foliage.

Thank you for your attention!

Vaddiszno (Sus scrofa)