CLASSICAL SWINE FEVER AMONG WILD BOAR - EXPERIENCES OF LARGE-SCALE SURVEILLANCE IN GERMANY

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Classical swine fever (CSF) or hog cholera among wild boar causes one of the most serious problems of animal disease control in many countries of Europe. During the last decade of the century, altogether 471 outbreaks of CSF in domestic pig farms occurred in Germany. A considerable percentage of 52 % of the primary outbreaks during the years 1993-1997 were contributed to epidemiological links to CSF-infected wild boar.
The epidemic curve of wild boar linked outbreaks differed from those outbreaks occurred due to direct or indirect contacts between pig farms.
At the beginning of the nineties, CSF cases among wild boar were observed only in very limited regions of Germany. The areas with infected wild boar were placed under stringent restrictions with respect to live animal trade of domestic pigs and products originating from these areas. Detailed surveillance measures were launched in all wild boar infected areas and lead to a nearly 100% investigation of all shot or dead found wild boar with serological and virological methods.

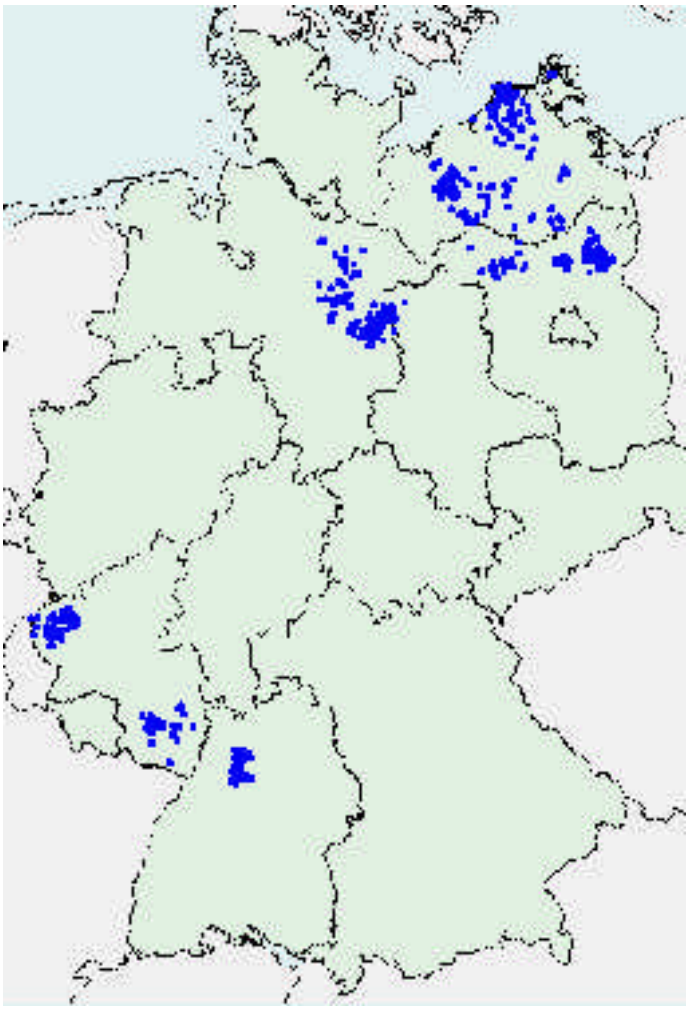
Materials & Methods

CSF among wild boar is a notifiable disease like CSF in domestic pigs. Therefore, CSF cases will be reported after official confirmation according the computerized animal disease reporting system of Germany as described by Kroschewski and Micklich (1997)[1]. CSF will be officially confirmed if CSF virus is isolated or directly detected in blood or tissue samples of shot or dead found wild boar.
Data of confirmed CSF cases in wild boar contained in the animal disease reporting database were used for the evaluations. Following information of a CSF case in wild boar were available: Date of disease confirmation, place of wild boar shot or found dead at municipality level.
For spatial visualization of the disease development in space and time, the desktop mapping software RegioGraph 2.1 (Fa. Macon GmbH Waghäusel/Germany) was used. Maps of Germany were created for each month between January 1995 and

December 1999 and converted into TIF images. These images were used for image sequences presented with the media player tool of Windows 98.
Although, the CSF situation among wild boar is well investigated in affected areas, limited information are available in non infected regions. In order to get also more information in these areas, a voluntary nation-wide surveillance program was launched on basis of serological testing of wild boar shot by hunters. The procedures of serological testing used during the surveillance program are described in the directive 80/217/EEC[2], the control directive for CSF in the European Union.

Results

Between 1995 and 1999, altogether 1.144 CSF cases in wild boar were reported in the computerized database in 6 federal states of Germany. As an example, the spatial distribution of CSF cases in wild boar in Germany between 1997 and 1999 is presented in graph 1.



Graph 1: Spatial distribution of CSF cases in wild boar in Germany between 1997 and 1999 (One dot is equivalent to one CSF case in wild boar)

The different affected federal states are presented in table 1.

Federal state	1995	1996	1997	1998	1999	sum
Lower Saxony	13	77	20	65	54	229
Brandenburg	95	83	28	16	61	283
Mecklenburg W. Pomerania	60	74	71	86	81	372
Rhineland Palatinate	5	0	0	11	159	175
Baden-Wuerttemberg	0	0	0	30	37	67
Saxony-Anhalt	0	0	0	0	18	18
Germany	173	234	119	208	410	1144

Table 1: Number of CSF cases in wild boar in different federal states in Germany between 1995 –1999

According to the voluntary surveillance program, altogether 26.995 blood samples of wild boar were serologically tested in areas outside wild boar infected areas in all federal states of Germany in 1999.

Discussion

CSF in wild boar occurred in different regions and intensities over time. Causes for the spread of disease foci in former free are often unclear. Some of the CSF foci are migrating into new areas in the neighbourhood, others tend to be more locally restricted. One reason for spreading of CSF in wild boar is the steadily increase of the density of populations observed on the basis of the increased hunting bag during the last two decades in all regions of Germany. However, the causes of an increase of the wild boar population are poorly understood. Changes in the environment and the ecosystems due to changes in agriculture and therefore improvements of the nutritional basis is one explanation.
The number of CSF cases presented are reported in a passive surveillance system in the sense of mandatory reporting. But additional information about the disease status at regional level are required for decisions of prevention measures. Therefore, since the end of 1998, a nation-wide surveillance program was initiated in order to evaluate the disease status of wild boar in the whole country. The number of tested sera allows a first overview of the situation in Germany.

References

[1] Kroschewski, K, Micklich, A: Possibilities and limits of epidemiological surveillance by use of the new national animal disease reporting system TSN in Germany. In: Epidemiol. sante anim. 1997, Paris, pp. 07.02.1-07.02.3

[2] Council Directive 80/217/EEC of measures of the community for eradication of classical swine fever. In: EC Official Gazette, No. L, p. 11