

Descriptive Epidemiology of The BSE Situation in Germany

Kramer, M*¹, Göbel, S. ¹, Staubach, C. ¹, Ziller, M. ¹, Klöß, D. ¹, Kroschewski, K. ¹, Selhorst, T. ¹ & Teuffert, J. ¹

¹Institute of Epidemiology, Federal Research Centre for Virus Diseases of Animals
Seestrasse 55, D-16868 Wusterhausen/Dosse, Germany

Summary

Active surveillance measures comprising about 5.8 million BSE (27 August 2003) tested cattle above the age of 24 months revealed altogether 266 BSE cases in Germany since November 2000. The age of the BSE positive cattle was on average 65 months in 2001 and has been increased in 2002 at an average age of 77 months. The presently significantly increased age of the BSE animals depending on the date of confirmation indicates a time dependent different external and internal BSE challenge.

Introduction

In 1992, 1994 and 1997, altogether 6 cases of Bovine Spongiform Encephalopathy (BSE) were diagnosed among imported cattle in Germany. Since the first domestic case was officially confirmed in Germany on 26 November 2000, the active surveillance measures were intensified (Groschup et al. 2002). The objective of this paper was to present the BSE situation and the surveillance activities in Germany during the last three years.

Materials & methods

BSE as a notifiable animal disease has to be reported via a computerized animal disease notification system (TSN). The BSE disease reporting data contained in this national animal disease database were used for this study.

The national cattle database, containing all cattle on a single identification system were used for population analysis with respect to BSE.

For spatial visualization of the disease situation, the desktop mapping software RegioGraph 2.1 (Fa. Macon GmbH Waghäusel/Germany) was used. Official census statistics of 1996 and 1999 were used for mapping the cattle density distribution as background image for BSE distribution and as basis for the comparison of regions.

At present, all cattle above the age of 24 months leaving the domestic cattle population have to be tested for BSE including cattle for regular and for emergency slaughter, fallen stock and the clinical suspects. Additionally, voluntary testing schemes for cattle below 24 month of age were initiated by the industries. Data of BSE testing originated from the Federal Ministry of Consumer Protection, Nutrition and Agriculture.

Results

Since the beginning of the active surveillance measures in Germany, more than 5.8 million cattle above the age of 24 months were tested for BSE. Altogether 266 cases comprising 7 cases in 2000, 125 cases in 2001, 106 cases in 2002 and 28 cases in

2003 were reported (on 27 August 2003). On average 1.3 BSE cases are confirmed weekly in Germany during 2003 (on 27 August 2003).

With respect to the age distribution of the BSE cases (Fig. 1), about 76% of all domestic cattle with confirmed BSE cases were born during the years of 1995 and 1996 with an accumulation in 1996 (about 47% of all cases). Single BSE cases of cattle born in 1987, 1990, 1991, 1992 and 1993 indicate, that BSE infectivity is apparently circulating among the German cattle population at least since the end of the eighties.

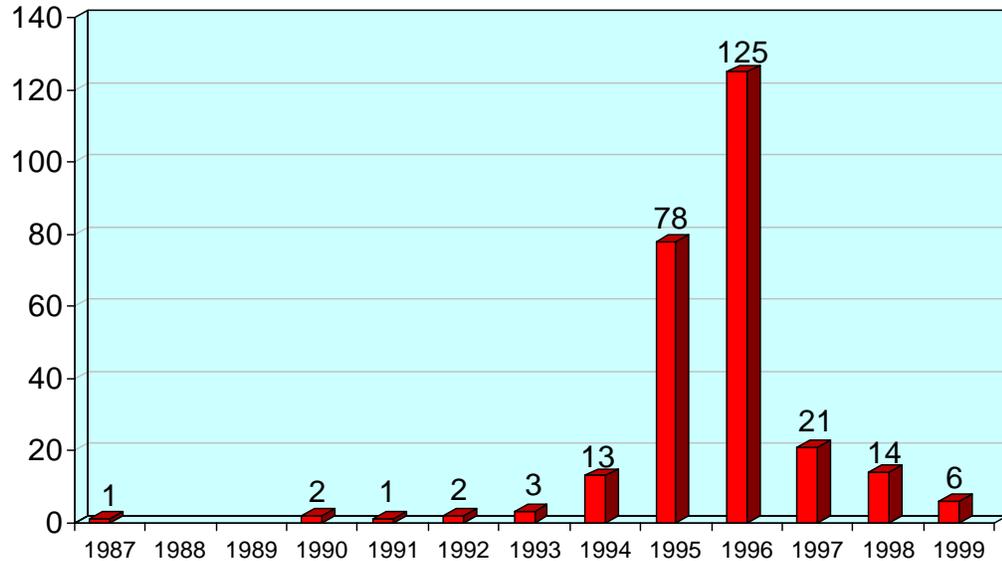


Figure 1: Number of BSE cases and the year of birth in Germany (on 27 August 2003)

The age of the BSE infected cattle on the time of death (diagnosis) varied between 28 and 183 months. The age of the BSE positive cattle was on average 65 months in 2001 and increased in 2002 at an average age of 77 months. A linear regression analysis indicates that the age of the confirmed cases depending on the date of confirmation is increasing significantly at present.

The spatial analysis of the BSE cases with respect to the place of the farm (community level) where the BSE affected cattle were kept before the death revealed one geographical cluster using a hierarchical Bayesian approach.

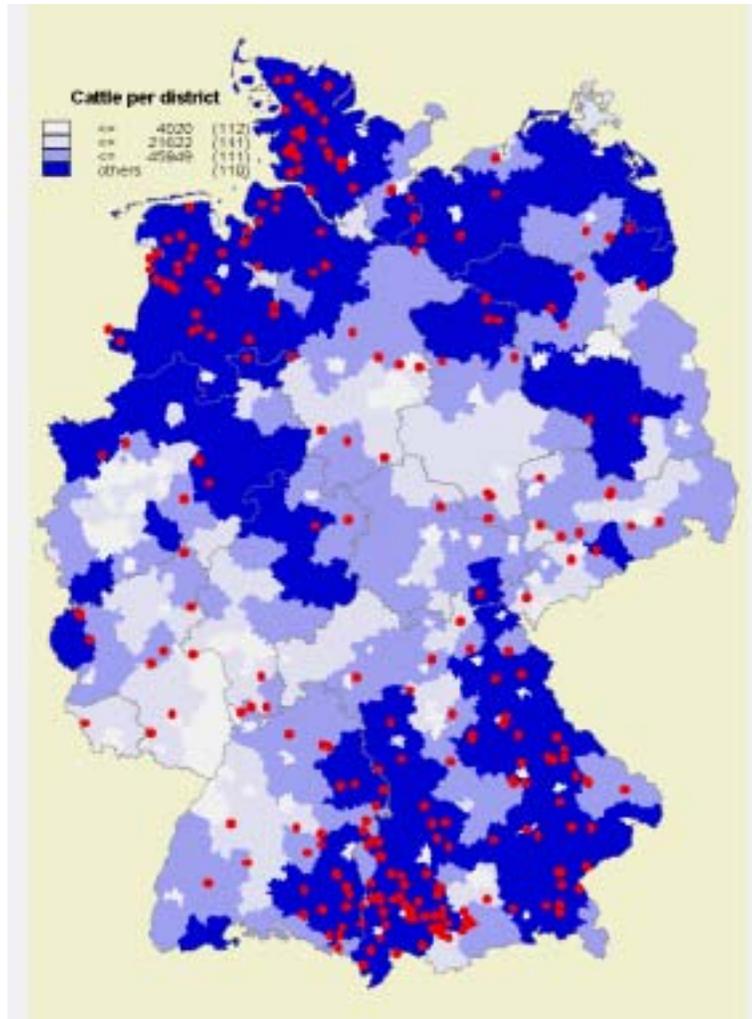


Figure 2: Spatial distribution of BSE cases on community level in comparison with the cattle density in 1996

Discussion

The spatial analysis revealed that the occurrence of BSE cases in general follows the cattle density of the referred regions. In one region in southern Germany, a geographical cluster was identified ($p < 0.05$). A possible explanation for the occurrence of this cluster and the absence of BSE in some densely populated areas could be the different exposure to contaminated feed stuffs, especially milk replacer, but further investigations are necessary.

The presently significantly increased age of the BSE animals depending on the date of confirmation indicates a time dependent different external and internal BSE challenge. Measures taken as result of the BSE crisis in Germany in 2000 will be measured with respect to their effectiveness at the earliest in 2005.

References

Groschup, M.H., Stolze, A., Kramer, M. (2002): BSE/TSE-Aktuelle epidemiologische Situation. – Dtsch. tierärztl. Wschr. 109, 461-500