

Short review of occurrence and impact of currently rare or "exotic" contagious animal diseases in Great Britain 1938 to 2007

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Introduction

Incursions of contagious diseases of livestock into infection-free countries are inevitable, as long as the diseases persist elsewhere in the world. However, much can be done to minimize the frequency of incursions. Understanding where, when and how these have occurred is essential to assess future risks and prioritize preventive measures. This report reviews the recorded incidence 1938-2007 of rare or "exotic" contagious animal diseases of major economic importance in Great Britain (GB).

Materials and Methods

The source of data were reports of British governmental veterinary services, the format of which has changed over the years (1). Following World War II, a single edition Report of Proceedings for the years 1938 to 1947 was compiled under the Disease of Animals Acts. Reports on Animal Health Services in GB were produced for 1948-1970, and annual Report of Chief Veterinary Officer: Animal Health for 1971-2007. The reported numbers of holdings affected by each disease in GB were cross-checked against Defra outbreak statistics, and post-1996 against the OIE HANDISTATUS. A searchable database of the disease occurrence was compiled in Microsoft Office Access ©2003. The impact of each disease in GB each year was evaluated as the proportion of total agricultural holdings affected, and as the percentage of susceptible farm-animals culled in control of the disease. The numbers of holdings and farm-animals were extracted from the results of June censuses of agriculture conducted in England, Scotland and Wales each year 1938-2007.

Results

Of the former OIE List A, the following diseases either have never occurred or did not occur in GB from 1938 to 2007: African Horse Sickness, African Swine Fever, Bluetongue, Contagious Bovine Pleuropneumonia, Goat and Sheep Pox, Lumpy Skin Disease, Peste des Petits Ruminants, Rift Valley Fever, Rinderpest and Vesicular Stomatitis. Three other diseases were graded to be rare (from Scottish perspective) or "exotic" of major economic importance: bovine tuberculosis, Aujeszky's disease and anthrax. Therefore, the occurrence of foot and mouth disease (FMD), classical swine fever (CSF), swine vesicular disease (SVD), bovine tuberculosis (bTB), Aujeszky's disease, anthrax, avian influenza (AI) and Newcastle disease in GB in 1938-2007 was reviewed.

The number of agricultural holdings defined in GB changed over the 70 years reviewed, with an overall decreasing trend (Chart 1). The number of livestock farmed increased up until the FMD outbreak in 2001, and declined afterwards (Charts 2, 3). The overall structure of the livestock population remained relatively stable (Chart 3). The numbers of poultry farmed grew (Chart 4).

The reviewed disease affecting the largest number of holdings in GB in a given year was bTB, with 6,707 new breakdowns in 1961 (1.69% of GB holdings) (Chart 5). Next was CSF, reported on 5,019 holdings (1.09%) in 1940, followed by Newcastle disease, reported on 4,217 holdings (1.50%) in 1971. (However, numbers of bTB breakdowns were only reported since 1948, and were not available for some of later years.) The maximal annual incidence of FMD was 0.77% in 2001; of anthrax 0.29% in 1956; of Aujeszky's disease 0.18% in 1983; of SVD 0.07% in 1974; and was negligible for AI.

Chart 5. Number of GB holdings reported to be affected by diseases reviewed each year 1938-2007 and major disease control measures introduced

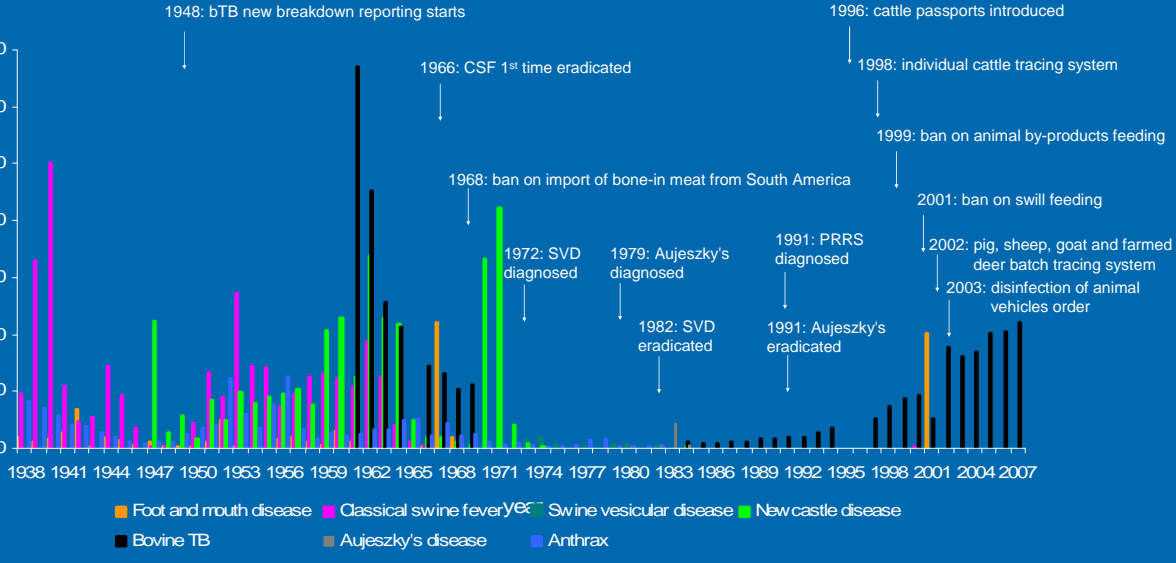


Chart 1. Number of agricultural holdings in GB each year 1938-2007

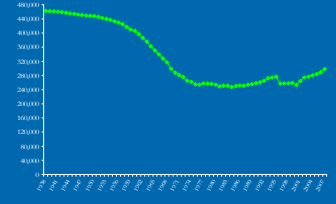


Chart 2. Numbers of livestock farmed in GB each year 1938-2007

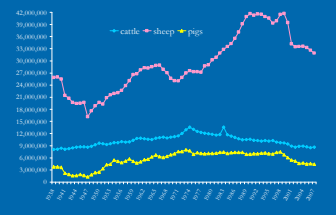
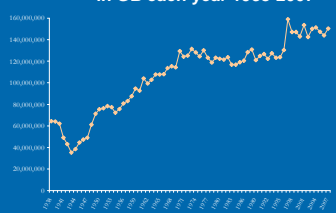


Chart 4. Number of poultry farmed in GB each year 1938-2007

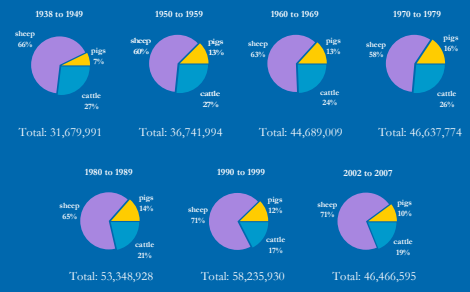


Results (continued)

Such "old enemies" as CSF, FMD and Newcastle disease were first eradicated by the 1970s. The probable contributing factors were: restructuring of the industry, increased biosecurity standards, and the development of mass-application serological-diagnostics tools and vaccines for animal infections. This was followed by the emergence of several contagious livestock diseases new to GB. Some of these were conquered relatively quickly: SVD was introduced in 1972 and eradicated in 1982; Aujeszky's disease was introduced in 1979 and eradicated by 1991. However, Porcine Reproductive and Respiratory Syndrome appeared from no apparent source in 1991 and became endemic.

The maximal cull of susceptible farm-animals was observed with Newcastle disease, in control of which 11.53% of poultry farmed in GB was culled in 1962. For livestock infections, diseases primarily affecting swine (CSF, SVD and Aujeszky's) resulted in the largest proportions of susceptibles slaughtered in a given year in the 1950s, 1960s, 1970s and 1980s. During 1938-1949 and 2000-2007 this was FMD. In the absence of the former OIE List A diseases in the 1990s and post-FMD 2001 bTB was the cause of slaughtering the largest proportion of susceptible livestock in a year.

Chart 3. Composition and total of livestock farmed in GB in a given year by decade



Acknowledgements This work was funded by Centre of Excellence in Epidemiology EPIC supported by Scottish Government. We thank Dr. Mike Lamont, Scottish Government Rural Directorate, for helpful advice.

References 1) Ministry of Agriculture Fisheries and Food, Department of Agriculture and Fisheries for Scotland, and Welsh Office Agriculture Department. 1938-2007. Report of the Chief Veterinary Officer: Animal Health, and predecessors. London: Majesty's Stationery Office.