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Bovine Spongiform Encephalopathy in the Republic of Ireland, 1989-1997

J. M. Griffin

Introduction
This paper outlines the epidemiology of bovine spongiform encephalopathy (BSE) in the Republic of Ireland from 1989, when the disease was first reported, to the end of 1997. All cases were investigated by a Veterinary Inspector of the Department of Agriculture and Food. A personal interview was conducted with each herd owner or manager to obtain information about individual cases, using a standardised questionnaire form. Further details of the reporting procedures were published in an earlier paper (Griffin et al., 1997).

Findings
In the period 1989-97, 516 suspect animals which had exhibited clinical signs indicative of BSE were compulsorily slaughtered. Two hundred and sixty five (51%) of these were confirmed as BSE cases on histopathological examination.

Fourteen of the clinical cases were imported animals. The range of clinical signs observed conformed with those described by Wilesmith et al. (1988).

A total of 14 to 19 cases were reported annually between 1989 and 1995, while 73 clinical cases were officially recorded in 1996 and 77 in 1997 (Table 1).

Of the total of 150 cases seen in the two years 1996 and 1997, 134 had been initially notified to the District Veterinary Office by a Private Veterinary Practitioner, nine had been notified by the herd owner and seven cases were detained following ante-mortem inspection at abattoirs.

Table 1. Number of BSE cases in the Republic of Ireland categorised by the year of confirmation.

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<tbody>
<tr>
<td>Imported cattle</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Native cattle</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>18</td>
<td>15</td>
<td>73</td>
<td>75</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>14</td>
<td>17</td>
<td>18</td>
<td>16</td>
<td>19</td>
<td>16</td>
<td>73</td>
<td>77</td>
</tr>
</tbody>
</table>

1 Eight of the 14 imported cases came from Great Britain, three came from Northern Ireland and three animals was imported from other EU countries. The imported cases were reported in Counties Carlow (2), Clare (1), Cork (2), Kildare (1), Kilkenny (1), Laois (1), Limerick (1), Longford (1), Monaghan (1), Wexford (1) and Tipperary (2).
Geographical Distribution
Four of the six initial cases seen in 1989 occurred in native cattle from Co. Cavan; the two other cases involved animals imported from the United Kingdom. Subsequently, the disease showed a wide geographical distribution, with cases being reported in every county except Mayo. Seventy nine of the native cases (representing 31% of all native cases) occurred in two counties - Cork and Donegal. When the number of native cases was adjusted for the cattle population of each county as recorded in 1991, the annual incidence rate of BSE in Donegal (4.8 cases per 100,000 animal years) was 4 times higher than the annual incidence rate of 1.2 cases per 100,000 animal years at the national level over the period, 1989 - 1997. All but one of the 265 cases were cows. The remaining animal was an imported bull; this animal had not been used for breeding, however.

Animals which subsequently developed BSE were born in each year from 1981 to 1994. One hundred and one (40%) of the 251 native cases were born after the ban on the inclusion of ruminant-derived protein in ruminant rations was introduced in August 1990. The ages of the affected animals ranged from 3 to 10 years; the majority of the cases were aged between 4 and 6 years. The modal age class was the five-year-old class, i.e. cattle aged between 5 and 6 years. The mean age of the native animals was 5.8 (SD ±1.2) years. This suggests a similar incubation period (mean = 5 years) to that postulated for cases in Great Britain. The distribution of native BSE cases by year of birth and year of confirmation of case is shown in Figure 1.

Figure 1. Distribution of 251 native BSE cases by year of birth and year of confirmation for the period from, 1989 to 1997 inclusive.

![Figure 1](image-url)
One hundred and sixty seven (67%) of the 251 native cases occurred in dairy enterprises, 63 (25%) in suckler enterprises and the remaining 21 cases in herds that contained both dairy and suckler enterprises. The herds affected varied in size from 3 to 946 cattle. The mean size of these herds, at 132 (median = 96) animals, was considerably higher than the mean herd size of 45 cattle for the country as a whole.

There was a positive correlation between increasing herd size and the risk of a case of BSE occurring ($P <0.001$). Herds with 100 or more dairy cows were 29 times more likely to have had a case of BSE than were herds with 1-19 dairy cows. When the 843 farms in the State with more than 100 dairy cows were considered on their own, 24 (2.8%) of these herds had a native case; furthermore, three additional herds in this category had an imported case. However, this difference decreased when the incidence of BSE was adjusted for the number of cows per herd. Cows in herds of 100 or more cows were twice as likely to be affected as cows in herds of less than 20 cows.

**Discussion**

The total number of clinical cases of BSE reported in the Republic of Ireland from 1989 to the end of 1997 was 265. This figure was considerably less than that recorded in Great Britain or in Northern Ireland, viz., a total of 169,947 cases were reported from Great Britain to January 2nd 1998 and 1,766 cases in Northern Ireland to December 26th 1997 (Ministry of Agriculture, Fisheries and Food, 1997). Farming practices in the Republic of Ireland rely upon the extensive use of grass both for milk and calf production, and are less dependent upon ruminant-derived protein feeds for calf rearing than is the case in Great Britain. It is considered likely that these latter factors contributed to the significantly lower prevalence of the disease in the Republic of Ireland.

The source of the BSE agent for cattle in the Republic of Ireland has not been conclusively established. The available evidence suggests (i) that cases that had been imported from the United Kingdom had acquired the BSE agent prior to importation and (ii) that contaminated feedingstuffs imported from the United Kingdom were, indirectly, the most likely source of the agent for a number of the later cases.

Possible reasons for the increase in 1996 and 1997 include a) a higher level of reporting of cases than in previous years, and b) the feeding of imported and home-produced animal feedingstuffs which had been inadvertently contaminated with protein concentrates containing the BSE agent, during the early 1990’s and earlier.

**Acknowledgements**

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**References**

