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<b>Authors(s)</b>	Hammond, Robert F., Griffin, John M., Sheahan, Michael, Maher, Peter, O'Hagan, Garry, Haheesy, Tom
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# Brucellosis (Contagious Abortion) In Cattle: 1989 – 2002

R.F.Hammond, J.M. Griffin, M. Sheahan<sup>1</sup>, P. Maher<sup>1</sup>,  
G. O'Hagan<sup>1</sup> and T.Hahesy

## Introduction

The Geographical Information System technology in the Veterinary Epidemiology and Tuberculosis Investigation Unit (VETIU) has been used to map the location and distribution of brucellosis-restricted herds from 1990 to the present day (Selected Papers, 1990 – 2002). Point distribution maps presented annually over the twelve years as an appendix to VETIU's annual Selected Papers reflect the progression of the disease and its control in the Republic of Ireland. An eradication scheme for bovine brucellosis (contagious abortion) was initiated in 1966 after a milk ring test survey carried out in 1965 on 105,000 dairy herds indicated a 12% herd incidence. This paper presents a summation of the point distribution data and draws on the paper by Sheahan *et al.* (2002) to outline the measures that have been put in place to eradicate this disease in the national cattle herd.

## Discussion

The point data supplied annually by the Department of Agriculture and Food since 1990 have been used to visualise the impact of the disease nationally. The eradication of brucellosis from the national cattle herd is a major aim of the animal disease eradication programme in the Republic of Ireland.

The histogram derived from the data shows the impact of the control programme currently in operation (Figure 1).

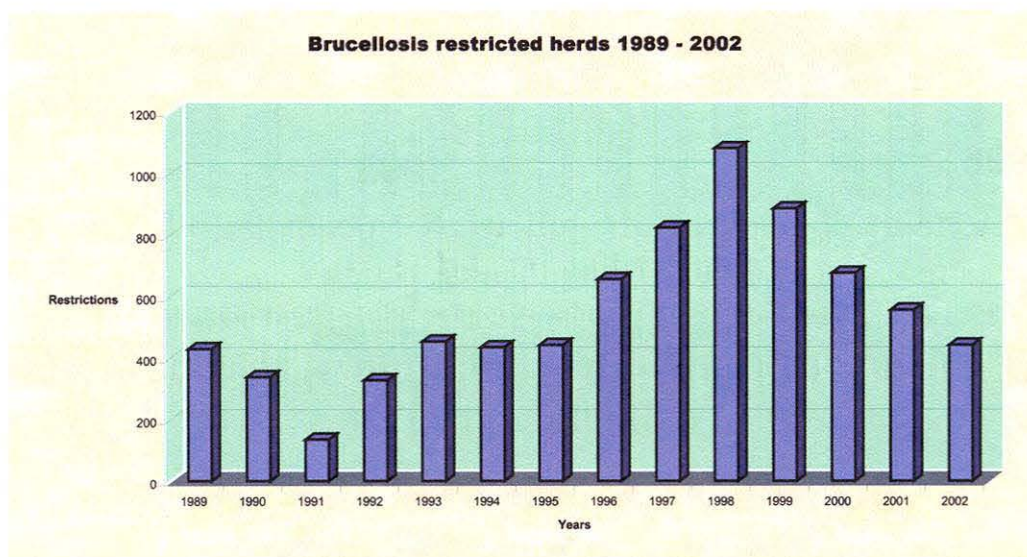
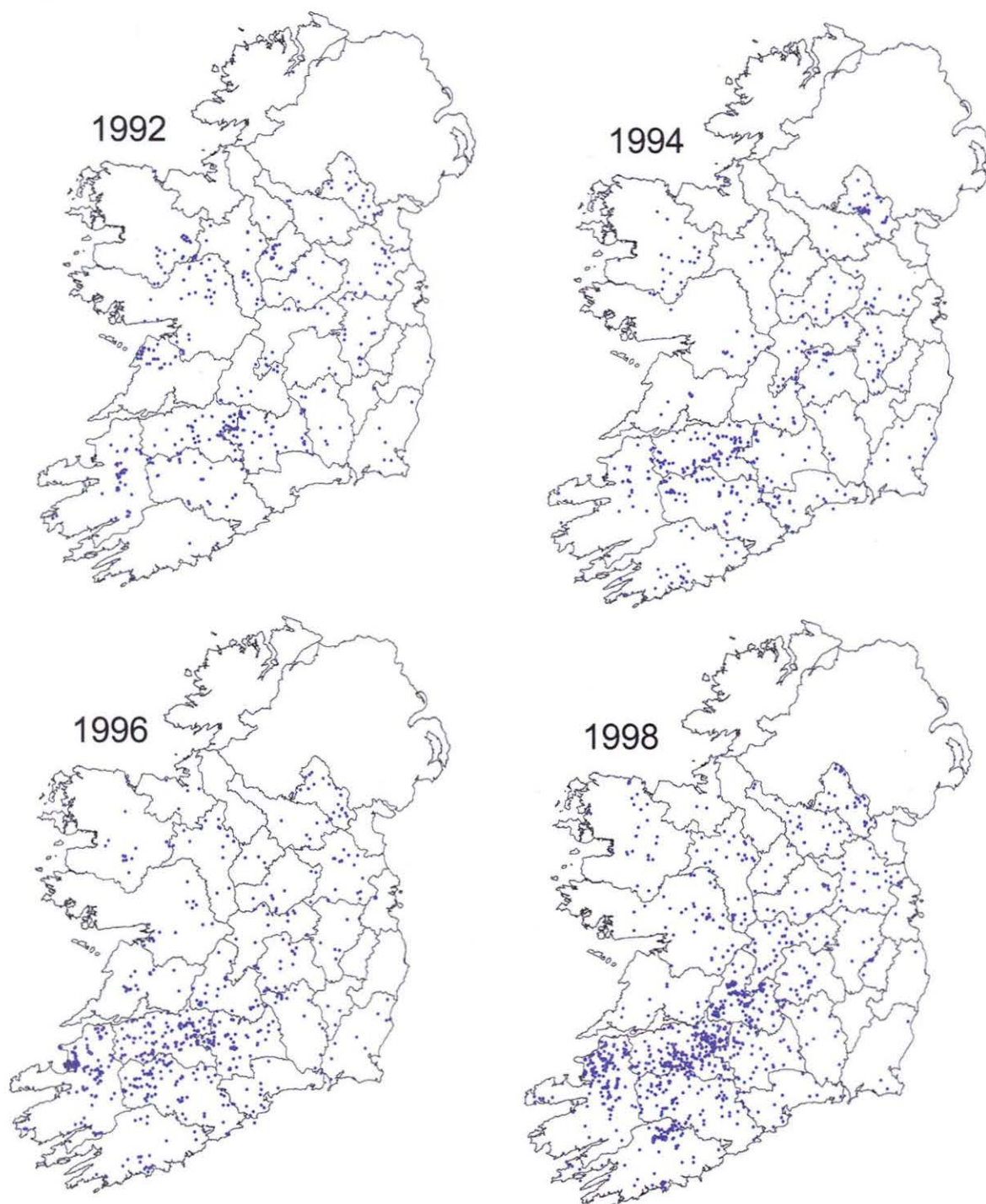


Figure 1. Histogram showing the annual number of brucellosis restrictions 1989-2002.

<sup>1</sup> Department of Agriculture and Food, Agriculture House, Kildare Street, Dublin 2

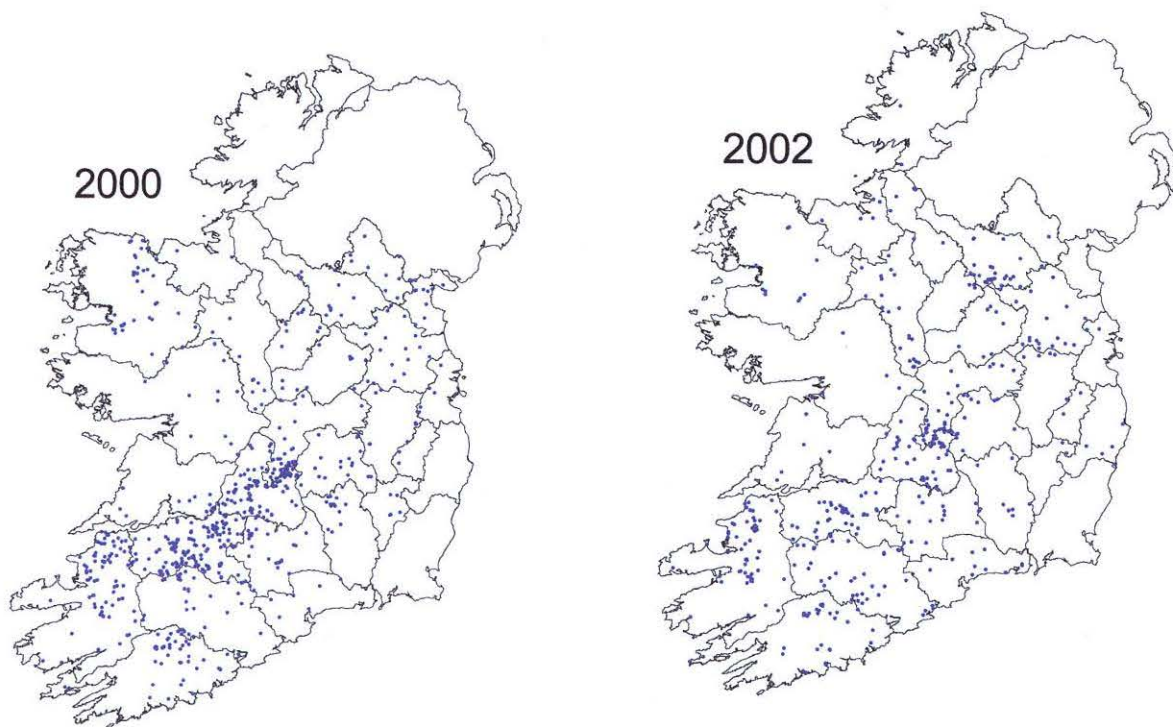
Considerable progress was made by 1986 in reducing the herd incidence of bovine brucellosis. However, between 1992-1998 the national herd incidence increased from 0.27% to 0.76%. The trend in the number of restricted herds along with the geographical distribution (point location) of these herds over the period, 1989-2001, is shown graphically in Figure 2.

**Figure 2. Geographical distribution of brucellosis restricted herds over the period 1992-2002.**





**Figure 2 (cont.) Geographical distribution of brucellosis restricted herds over the period 1992 – 2002.**



Increased herd incidence over these years can be attributed in large measure to 1) the scaling back of the control eradication programme in the mid 1980s, amendment of control regulations, e.g., removal of the animal pre-movement test and 2) a European Union suckler cow quota scheme which was introduced in 1992 and created an abnormal trading pattern of animal movements throughout Ireland. The latter led to an increase in the dissemination of the disease.

Subsequently the following measures were implemented to control the situation:

- Pre-movement test
- Intensified testing programme
- Rapid depopulation policy
- Disinfection of slurry on infected holdings. Research conducted by the VETIU staff and veterinary staff in the DAF on the disinfection of slurry on farm holdings restricted by brucellosis infection has been a major factor in curtailing the spread of this disease (Haheisy and Henaghan, 2000; Haheisy and Sheahan, 2002). The procedure is based on the addition on hydrated lime in liquid form (“Thick Lime Milk”) in sufficient quantities to raise the pH of the slurry to 12 for one hour. Following treatment slurry can be safely spread

within 24 hours. This treatment is now compulsory in all brucellosis depopulated herds since January 2001.

Diagnostic improvements:

- Improved milk testing. From March 1st 2002, the whey ELISA test has replaced the Milk Ring Test as the milk-screening test in Ireland.
- Emphasis on the control of spread of *Brucella abortus* to contiguous herds. This has been accomplished by imposing extended rest periods following depopulation beyond the existing four-month period. This measure is used in situations where active infection is still present in contiguous herds, and where previously a restocked herd would otherwise have been at high risk of becoming re-infected.
- Cull cow monitoring at meat plants based on serology and the culture of supermammary lymph nodes for *B. abortus*.

The combined effects of these measures have been successful to date, with disease levels falling significantly. It is intended to retain the full range of control measures outlined above in place until final eradication has been achieved.

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