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Study of Herds Depopulated due to Tuberculosis

T. Hahesy, J.M. Griffin, and L.A. Dolan

Introduction
Depopulation as a disease control measure is normally undertaken where it is considered that one or more of the following apply:

a. Conventional measures are considered incapable of removing the disease.
b. The action will remove a significant source of infection from the area.
c. The restocked farm will be capable of attaining and retaining a Tb free status.

Study
To access the impact of this policy a study of depopulated herds was undertaken by the Tb Unit in the latter part of 1990. The brief was to review the subsequent disease history of the herds depopulated in the period 1/1/86 to 30/6/87, and using this yardstick to evaluate the efficacy of this important but costly element of the eradication programme. The total monies expended on Tb depopulation in 1990 was estimated to be in excess of £2 million.

In the 18-month period examined, a total of 87 herds from 24 different District Veterinary Office (DVO) areas were depopulated. The relevant DVOs supplied the following documentation/information for each herd:

1. Herd Test History
2. Animal Test History
3. Epidemiology report forms

Results
An examination of the size of the 87 herds showed that 23% had 1 to 10 cattle, 39% had 11 to 35 cattle and 38% had more than 35 cattle.

Of the 87 herds, 31 (36%) were dairy herds, 46 (53%) were suckler herds and 10 (11%) contained dry cattle.

Seventy two of the herds restocked and remained in cattle farming, of which 26 (36%) became restricted again by June 1990.
Herds
The details of the 26 herds are as follows:

* A higher proportion of herds in the 35+ cattle category became restricted again after restocking.

* After restocking a lower proportion of the dairy farms and a higher proportion of the suckler herds and dry cattle herds became restricted again.

* 12 (43%) of herds had a single reactor animal only. The number of reactors in the remaining 14 herds ranged from 2 to 20.

* 22 of the 26 herds contained 1 or more standard reactors, 3 herds contained standard inconclusives only while 1 herd contained only an animal which was negative to the standard interpretation and was deemed a reactor on clinical/epidemiological grounds.

* 8 (31%) herds were restricted at their first test after restocking. In 4 further herds the reactors failed their first test in the herds. The mean interval from depopulation to first test was 301 days compared to an interval of 353 days in herds which remained clear. The mean number of clear tests was 1.9 (Range 0-6).

* In the case of 3 of the 26 herds, it was possible to trace the animal to breakdowns in their previous herds. In 11 herds tracing of all purchased animals was achieved and no history of Tb was found in their previous herds. In the remaining 12 herds, it was not possible to trace the origin of all animals which reacted.

* The Area Veterinary Inspector attributed 3 (11%) of the 26 breakdowns to bought-in cattle. In 10 (38%) of the 26 herds, the cause of the breakdowns was attributed to wildlife involvement. The remaining breakdowns were attributed to a variety of causes or were not clearly apparent.

* 20 (77%) of the 26 herds were clear again in June 1990 when the study commenced.

Animals
* 64 (51%) of the cattle deemed reactor were positive to standard interpretation, 47 (37%) were inconclusive and 15 (12%) were negative.

* 42% of the animals which were positive to the standard interpretation showed lesions at post mortem. The corresponding figures for inconclusive and negative animals were 6% and 7% respectively. The overall rate was 25% of animals showing lesions.

* Of the 126 animals which reacted, 39 (31%) went down at their first test.

* In the case of 67 of the 126 animals, tracing the herd of origin was possible.

The 15 closed herds
A higher proportion of the herds in the 1 to 10 cattle category closed down at depopulation. Eleven of these 15 farms were rented for cattle grazing to 14 herds. Two (14%) of these herds have had reactors. The remaining 4 farms were not used for cattle farming.

Discussion and Recommendations
Since 22 of the 26 herds contained standard reactors, the high level of herd breakdown could not be attributed to severity of test interpretation alone.

For most herds, the breakdowns could not be attributed to the purchase of infected cattle since in only 3 (11%) cases did the Area Veterinary Inspector identify this as the source of infection. The trace back of the reactor animals in some cases was not possible due to the fact that many identity cards had since been destroyed. It would be advisable in future if the relevant DVO kept a record of cattle subsequently purchased into a herd after depopulation for a period, e.g. 3 years.

It may be advisable to make re-stocking on these farms conditional on purchasing from specific category herds e.g. Category D herds.
Since wildlife was implicated in 38% of cases in the opinion of the Area Veterinary Inspector, it indicated that depopulating herds in an area where the badger population is also infected, will not have a significant effect on the persistence of tuberculosis in the area. If it is deemed necessary to depopulate a herd, these badgers should also be removed when infection is present.

Lateral spread was identified by the Area Veterinary Inspector as the cause of spread in a number of cases. It would seem prudent to have the boundary fences repaired and made stockproof and disease-proof during the rest period. In part, the compensation paid as a result of depopulation might include the subsidising of electric fencing at the farm boundaries.

Nose to nose contact between neighbouring cattle can result in the spread of Tb