

The Epidemiological Role of 'No Specific Infection' Herds in Bovine Tuberculosis in Ireland



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Introduction

Confirmation of bovine tuberculosis (bTB) by carcass inspection and laboratory testing is not reached in many test reactors (>65%). It is anticipated that the proportion of these animals will increase as the overall national herd incidence of bTB declines. It is reported that a proportion of herds particularly feature in this phenomenon – termed 'no specific infection' (NSI) herds. A greater understanding of disease dynamics in such herds is key to informing the eradication programme.

Research Objective

To determine the scale and potential epidemiological impact of NSI herds

Materials and Methods

Selection Criteria

Following widespread expert consultation NSI herds were defined as herds:

1. Currently in 'breakdown'
2. Which had reactors at the most recent test
3. With no visible lesions at slaughter nor confirmation of bTB on laboratory analysis
4. Where no bTB was confirmed in the previous 5 years

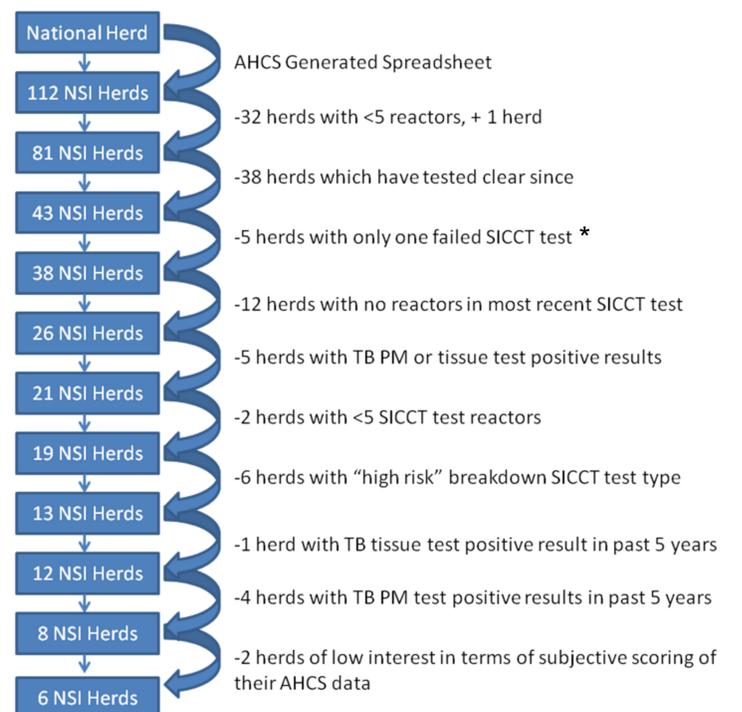
112 herds identified.

- 32 deselected as <5 reactors

+ 1 herd added by DVO referral.

⇒ **81 herds of interest** identified and tracked on AHCS (Animal Health Computer System) database and additional criteria were applied to determine if they met strict NSI criteria.

Sequential deselection of herds as strict NSI criteria applied



*SICCT test – Single Intradermal Comparative Cervical Tuberculin Test.

• Ultimately only 6/112 (5.4%) of initially suspect NSI herds fitted the criteria.

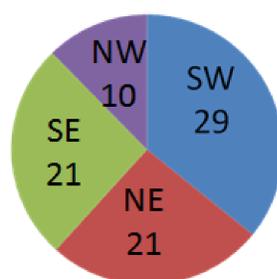
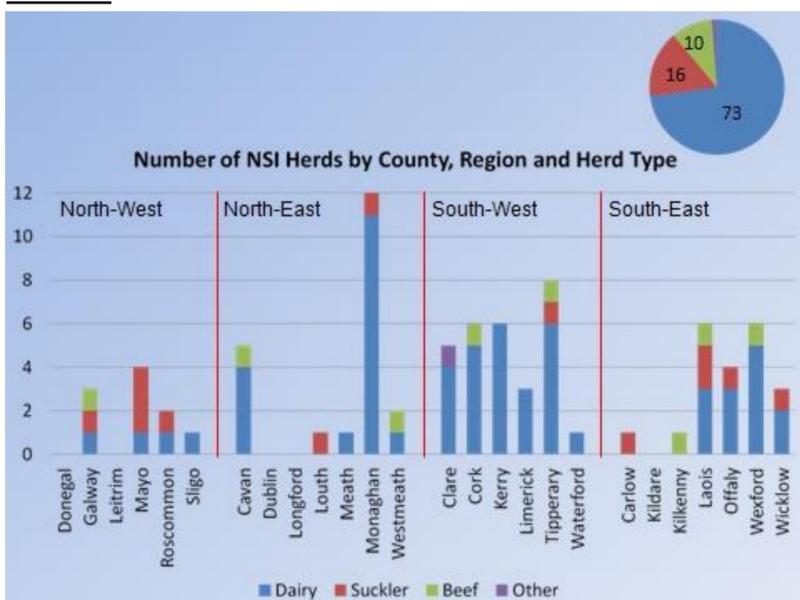
• These contained relatively low numbers of reactors (range: 5-10, mean = 7.5).

• 50% were 'high-risk outbreak' herds where infection may not have cleared.

• Dairy herds over-represented (5/6).

• No lesions found or *M. bovis* cultured from 8 animals from two of these herds that were subject to detailed post-mortem examination

Results



• Dairy herd bias – ~73% of herds

• South-West bias – ~36% of herds

Conclusions

- Our results query the epidemiological significance of NSI herds.
- ~30% of initially suspect NSI herds excluded due to low reactor numbers.
- Majority (>64%) of herds deselected once strict NSI criteria applied:
 - Deemed 'High Risk'
 - Had since confirmed with bTB
 - Had since tested clear
- The remaining herds (5.4%) manifest small numbers of reactors.
- Does NSI represent persistent, low grade or latent bTB within herds – so infection is in fact 'specific'?