ASSOCIATION BETWEEN *M. bovis* STRAIN TYPES IN CATTLE HERDS
AND ROAD-KILL BADGERS IN NORTHERN IRELAND

As part of research conducted by the Agri-Food and Bioscience Institute, strain typing using new DNA fingerprinting methods has allowed the identification of different strains of *M. bovis*. The first *M. bovis* isolate from each new confirmed TB incident in cattle has been strain typed for the period 2003 to present. This work has led to a large number of genetically-distinct *M. bovis* strains being identified. Mapping revealed strong geographical clustering of *M. bovis* strain types to particular regions (Figure 1). This pattern was largely preserved over time (2003 to present).

DARD has also been investigating the extent of *M. bovis* infection in NI badgers, through a survey of badgers submitted from Road Traffic Accidents. Where *M. bovis* was confirmed in road kill badgers, isolates were also strain typed, using the same methods as for cattle. Of the road kill badgers analysed between 1999 and the present only 100 yielded isolates. In all cases the strain types isolated in badgers were also found in cattle but many *M. bovis* strain types from cattle were not isolated from badgers.

*M. bovis* strain types in both cattle and badgers were clustered to the same geographical regions (figure 1). This is indirect evidence of an association between TB infections in cattle and badgers but does not provide evidence of the direction of transmission between badgers and cattle. Similar findings and interpretations have now been reported from studies in England and Wales.

It should be stressed that the badger sampling methodology used in formulating Figure 1, may not provide an accurate assessment of TB prevalence in badgers across the whole of Northern Ireland due to the fact that only badgers which have been killed on the road are included (which is an inherent bias in the survey technique). Furthermore, it is also likely that there has been a reporting bias in the survey as farmers with TB infected
herds may be more likely to report such carcases. It should also be noted that the sample numbers for badgers (100 isolates over approximately 10 years) is very small in comparison to cattle isolate numbers.

Currently, this data is considered observational, although it is intended to publish findings in a peer-reviewed publication, which requires specialist spatial statistical analysis. As such the analyses and validation are not complete.

Figure 1 (below) refers. Different *M. bovis* sub-types are shown in different colours. This map shows only those *M. bovis* strain types which were shared between home-bred cattle (2003-present, solid colour circles) and RTA badgers (1999-present, solid colour stars with boundary).