

# MONITORING OF ADULT BOVINE MORTALITY IN ITALY

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**Introduction:** BSE (Bovine Spongiform Encephalopathy) is a progressive neurodegenerative disease occurring in adult cattle. In order to verify the actual epidemiological BSE status of member states, the European Commission (EU) set up an Active Surveillance System for BSE, which started on 1st January 2001 and is based on rapid and easily applicable post mortem tests. All the results are collected in a National Database at CEA (Transmissible Spongiform Encephalopathies National Reference Laboratory). In the frame of Active Surveillance for BSE emergency slaughtered animals, animals with non-specific clinical signs at ante mortem examination and fallen stock (i.e. animals dead on farm or during transportation) represent "risk categories for BSE". It is assumed that bovines which test positive for BSE are more likely to be found in those groups than in regularly slaughtered animals. Testing on the field the overall fallen stock subpopulation can be very difficult and may result in an escape route for affected animals. For this reason, the reliability of bovine mortality data must be assured and firmly monitored.

General aim of this study is to assess the effectiveness of the Italian bovine mortality surveillance system, by comparing data from the National Bovine population Database (NBPD) with data coming from the compulsory surveillance for BSE and recorded in the National Active Surveillance Database (NASD).

**Materials and Methods:** During the first semester 2006 through a comparison between the two official datasets (NBPD vs NASD) 10,841 fallen stock cattle, never submitted to test, came out. In the same period the total number of recorded fallen stock in NBPD was 32,661. CEA decided to carry out a specific investigation on the unmatched cases. After a preliminary check by which mistakes in the individual identification of animals were worked out, 9,258 out of 10,841 animals resulted as actually non recorded in NASD, this is to say non BSE-tested animals. A cross-sectional investigation was carried out on those animals. A random sample stratified on the regional distribution of the unmatched fallen stock was carried out. To define the sample size the accepted error was established to be  $\pm 5\%$  around the estimated percentage equal to 50% of the non tested dead animals, with 95% level of confidence. 370 dead animals were selected and a questionnaire was administered to the veterinary officers in charge of BSE control. Moreover we checked the risk to be a non tested animal specific for each region and, starting from the difference between the two databases, we looked for an association (in terms of RR) between the mortality rate and the region of origin of the animal.

**Results and conclusions:** The results can be represented as a flow chart as it is shown in fig. 1. The definitive result of the survey was that 8,332 heads (about 26%) of the 32,661 Italian fallen stock has not been submitted to BSE rapid test in the first semester of 2006. Fig.2 reports Italian regions and is helpful to read the next two figures. The RR to die is higher than 1 in 9 regions out of 20 and it is shown in Fig. 3; the RR of being a non tested animal doesn't reflect the distribution of mortality (Fig. 4). The reason of this difference needs a deeper investigation. At first sight it looks that regions in which the management of the herds are similar (e.g. Sardegna & Sicilia, Piemonte & Lombardia) have a different mortality risk. The regions where the BSE tests are not performed probably are those in which is more difficult to reach the dead animal because of their marginal pastures.

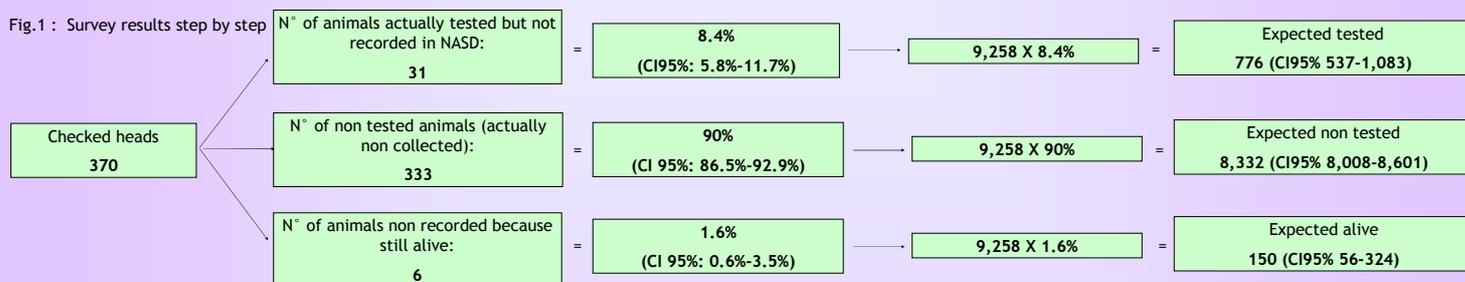


Fig. 2 Italian Regions: to use as legend of the next figg.



Fig. 3 Relative risk of general mortality (by region)

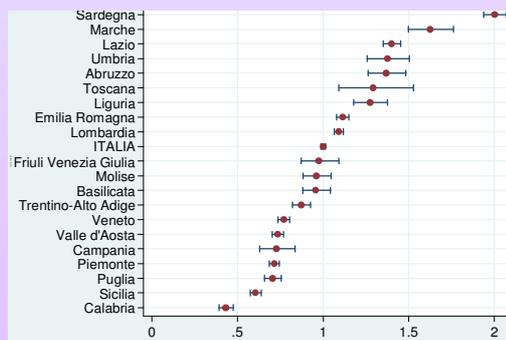


Fig. 4 Relative risk of being a non tested animal (by region)

