

Descriptive evolution of bovine Tuberculosis in Castilla-La Mancha

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Background

Bovine Tuberculosis (bTB) is an infectious disease which is included in a national eradication plan funded by the Spanish Ministry of Agriculture, Food and Environment and by the European Union.

The measures are focused in the slaughtering of intradermal reaction positive animals. Since 2006, the Gamma Interferon test was included to detect as much positive animals as possible, in farms with recent history of bTB.

Several research works have set risk factors for bTB occurrence which include recent history of bTB, cattle movements, herd size, and also other risk factors like the management of animals and the contact with potential wildlife reservoirs (Humblet et al., 2009; Skuce et al., 2012). Most of them focused on classical farms, as dairy herds.

In Castilla-La Mancha there are different types of bovine herds, which includes intensive production as the dairy herds and the feeding cattle farms, but also there are extensive farms for cattle, and other devoted to bullfighting cattle.

Objectives

The aim of this work was to describe the evolution of the disease in Castilla-La Mancha since 2007. The interest of studying bTB history, is related to the potential to understand and to assess which possible measures could be included in the future, or what data would be interesting in the Castilla-La Mancha region to assess the risk of different municipalities.

Materials and methods

Information recorded during the eradication plan since year 2007 has been studied. The trends of the different parameters, and data have been analyzed to know the evolution of the disease and the effectiveness of the eradication policies. Also a revision of risk factors literature has been made to take them into account for the future implementations of eradication policies.

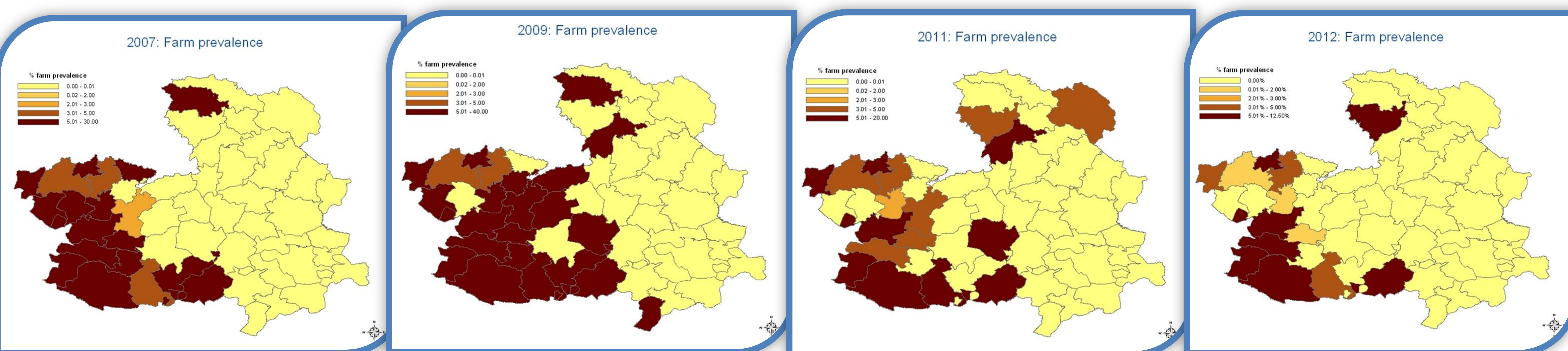


Figure 1. Farm prevalence representation per Local Veterinary Unit by chronological order: 2007, 2009, 2011, 2012.

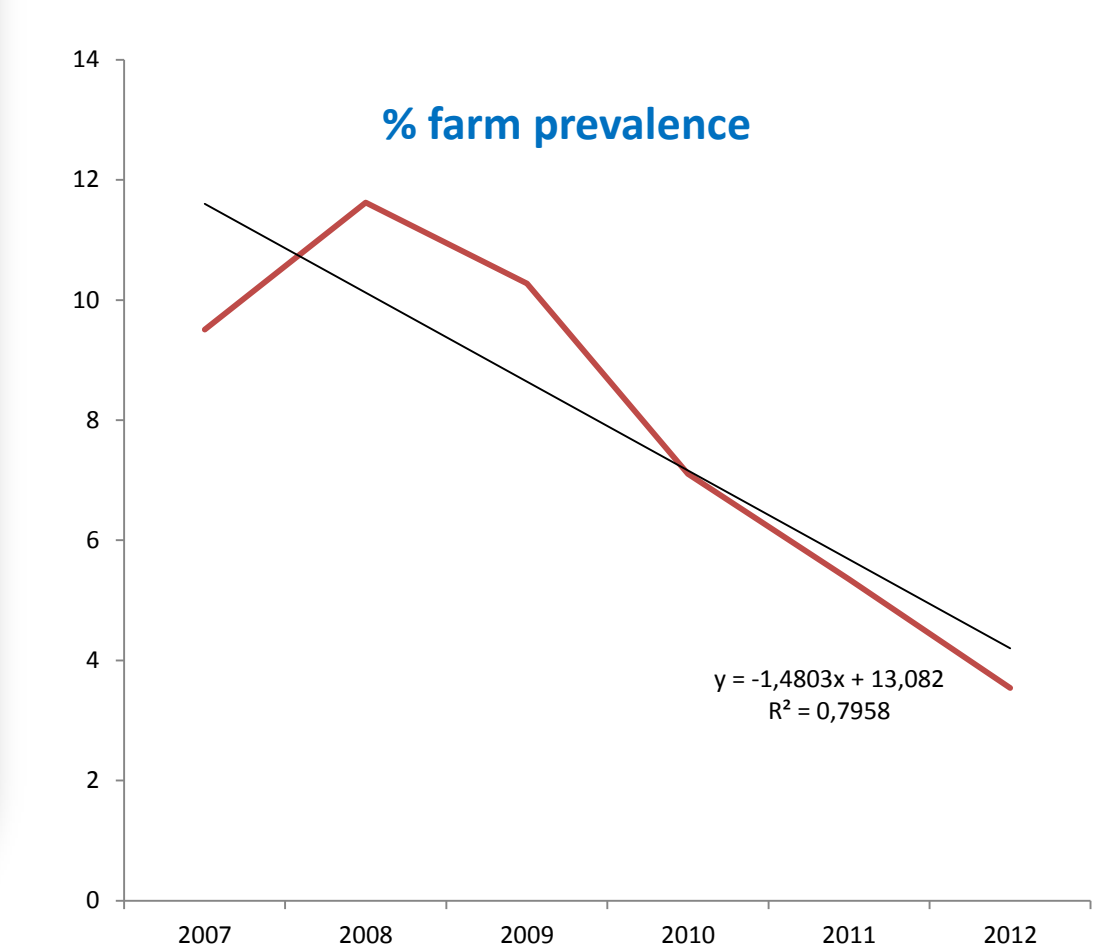


Figure 2. Trend in farm prevalence

Results

The herd prevalence evolution for each Local Veterinary Unit (LVU) in Castilla-La Mancha is represented in figure 1. It has been observed that the number of high prevalence areas have decreased from 2007 to 2012. The trend analysis showed a decrease in the prevalence percentage in the region (Figure 2).

In the same way, the number of positive animals has dropped since 2007, with a decreasing trend as it is shown in figure 3. Also, the percentage of positive animals per LVU has decreased as it is shown in the representative maps drawn in figure 4.

In the last year, 2012, bTB has been detected in 75 farms, and the analysis of the positive farms revealed that 34.7% of them were new positive farms, and 65.7% were recidivist.

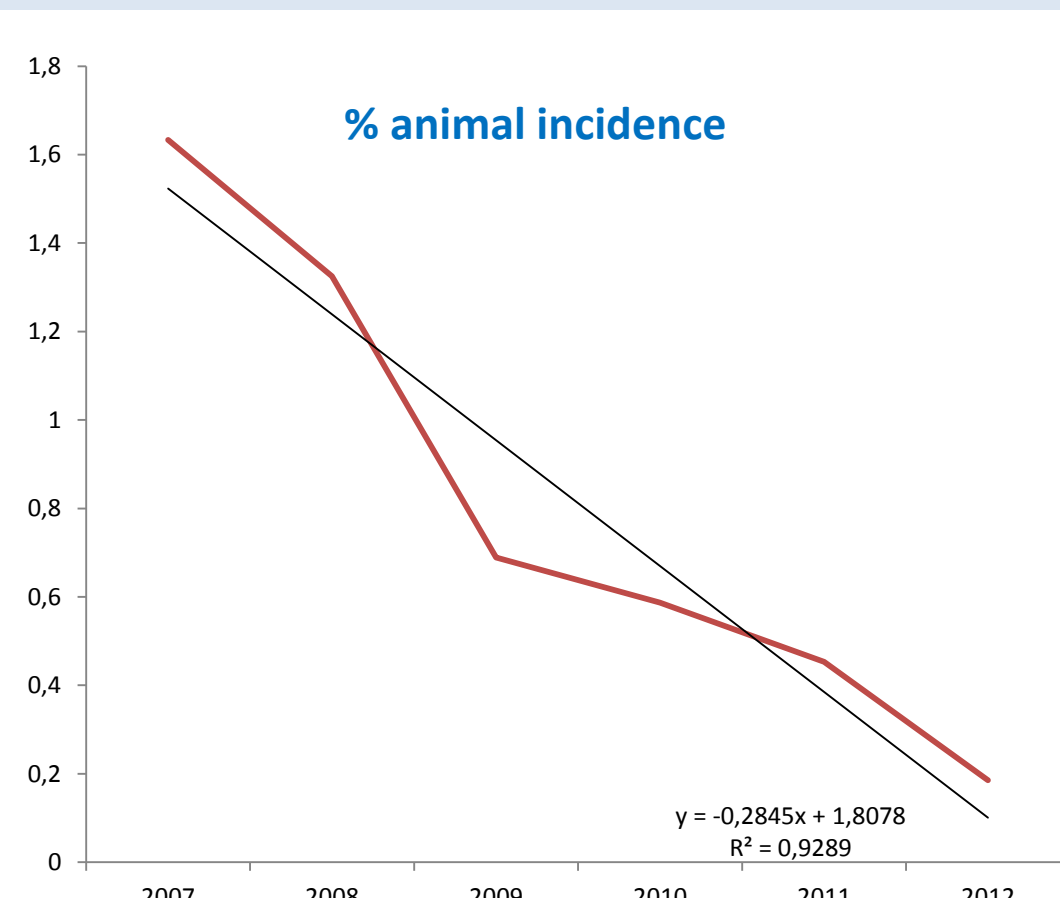


Figure 3. Trend in animal incidence

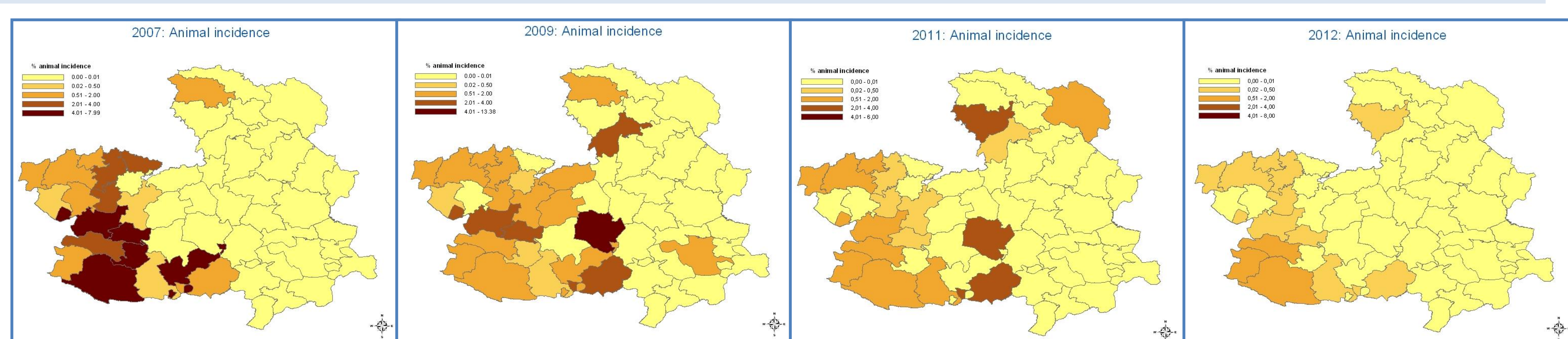


Figure 4. Animal incidence representation per Local Veterinary Unit by chronological order: 2007, 2009, 2011, 2012.

Discussion and future work

The evolution of bTB in Castilla-La Mancha, showed that the application of the eradication plan has had positive results, since bTB has decreased at herd prevalence level and also at animal incidence level. Taken into account that 67.3% of positive farms are recidivist farms, it should be implemented the program with specific measures at farm level, in other words, each positive herd should be studied individually to try to eliminate disease in those farms positive for more than one year. For working individually in each herd for knowing which factors are involved in the disease occurrence in the farm, it is very interesting to make clear the importance of recovering data by the field veterinarians.

The low percentage of new cases, could be an interesting indicator of the effectiveness of contingency measures. Also, it could be interesting implementing data bases to write down the biosecurity level, since it could be useful to detect which herds are more risky according to biosecurity.

A new approach to study risk variables for bTB in a limited area has been published recently (Rodríguez- Prieto et al., 2012). That study assesses the risk at a lower level than LVU. This is an interesting point of view which should be applied in future for the eradication plan, since it could be thought that the risk in a high prevalence LVU, is not the same for every municipalities. In this way, future work related to assess risk at municipality level should be done taking into account risk factors as reservoirs presence and wildlife bTB prevalence.