IDENTIFICATION OF SPATIAL PATTERNS OF BOVINE TUBERCULOSIS IN HERDS IN THE SOUTH OF THE STATE OF MEXICO, MEXICO, AND ITS ASSOCIATION WITH DEMOGRAPHIC AND ENVIRONMENTAL FACTORS OF THE HERD

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Introduction: Bovine tuberculosis is an infectious disease of chronic course, debilitating condition, characterized by the formation of tubercles, is caused by Mycobacterium bovis and has the ability to affect both domestic and wildlife species and even he-man, it is now classified as one of the major reemerging zoonotic diseases.

Objective: This investigation was identify and analyze the existence of a spatial pattern and its relation to environmental and demographic factors of bovine herds positive officially involved in the campaign to eradicate bovine tuberculosis in south Mexico State, Mexico.

Materials and methods: Database cattle herds participating in the campaign for the eradication of bovine tuberculosis in south Mexico State, Mexico from February 2001 to January 2009.

Database of the nomenclature of the localities in the State of Mexico (IGECEM 2007) to obtain the geographic coordinates of the municipalities of Mexico State. For the analysis of information were used software, Arc View GIS 3.2, SatScan version 8.0.

In the present study was defined as positive herd who have a positive bovine tuberculosis according to the NOM-031-ZOO-1995.

For the study of spatial clustering was used spatial statistical method Scan (Ward and Carpenter 2000), following the Poisson model in SatScan software version 8.0.

For the association with environmental and demographic factors, we followed the methodology described by Sabel et al (2007), which entered information with respect to the type of exploitation of the herds as a demographic variable in the herd, information was encoded as: 1 beef production, 2 dairy production and 3 mixed production, the type of soil used as an environmental variable that was coded as:

1 regosol,
2 luvisol,
3 litosol,
4 feozem,
5 cambisol,
6 acrisols
7 andosol.

These variables were entered in the software Scan Sat 8.0.

Results and conclusions: Scan using the statistical method with the Poisson model, with a p =0.001 (significant < 0.05) the results indicate that bovine tuberculosis in south of State of Mexico follow a spatial patterns distribution and the cluster space is located between the township Tlatlaya and Amatepec. The center of the cluster is located in the municipality of Tlatlaya (Latitude 18.533611, Longitude 100.356667), with a radius of 18.05 km. In which the farms of meat production represent 50% of positive farms of cluster, 100% of the farms are located on the soil Regosol.