

## SURVEILLANCE OF FOOT AND MOUTH DISEASE IN THE PROVINCE OF CORDOBA, ARGENTINA, A RETROSPECTIVE STUDY : TEMPORAL - SPATIAL PATTERNS BETWEEN 1985 AND 1993

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*The temporal - spatial analysis allowed to describe patterns of FMD incidence. The cyclical behavior and marked seasonal patterns were observed. Two different epidemiological areas were detected by means of digitized maps.*

### INTRODUCTION

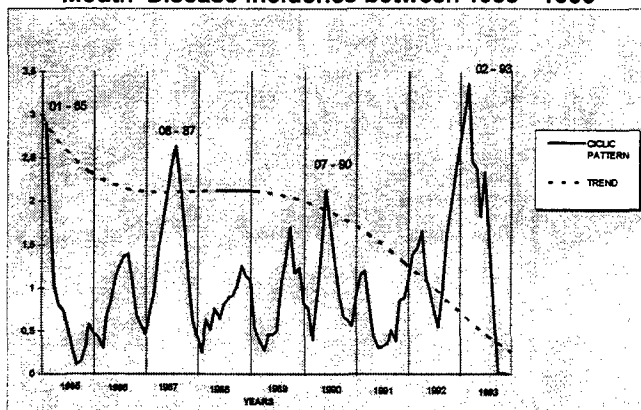
Foot and Mouth disease (FMD) is the most important disease that has economically affected animal production in Argentina. The study of the temporal - spatial distribution of FMD allows to prevent its future development since periodicity of outbreaks reflects the development of epidemic conditions. Like other diseases, this behavior can be related to variation of population immunity, field serotypes, changes in the patterns of production, animal trading and control policies that have been carried out.

### OBJECTIVE, MATERIALS AND METHODS

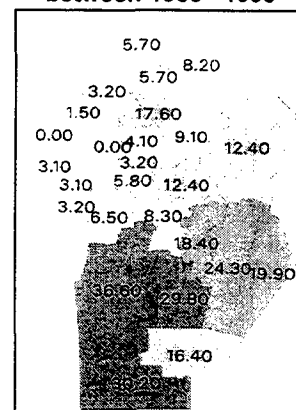
To describe the temporal-spatial patterns of FMD incidence.

Monthly information of outbreaks recorded by SENASA was used. Each report was referred to a geographical area such as indicated by CPFA. Temporal description was analyzed by means of time series technique (Lapin, 1978). Spatial patterns were described in two ways: one was the OMEGA index. The determination of median pondered centers was the other one (Centers of Higher Activity) (Ebdon, 1982). ARC INFO software was used for mapping the spatial variables (ESRI, 1994). **RESULTS:** The FMD incidence decreased and experienced a three years cyclical variation (Fig.1). A seasonal factor was responsible for the risen risk during May, June and October. The endemism was higher than 18 % in the Central-Southern area of the province, showing values higher than 28 % in three Departments. The Northeast and Northwest showed the lowest values, excluding one Department (Fig.2). The higher activity centers in the North, did not show any movement, they were located in two Departments. A movement of centers from the central-northern to the central-southern areas was observed in the South of the Province.

**Figure 1 : Ciclic Variation and Trends for Foot and Mouth Disease Incidence between 1985 - 1993**



**Figure 2 : Omega index by Department between 1985 - 1993**



### DISCUSSION

Decreased incidence in outbreaks from 1990 could be due to an increased vaccination rate, since a new control policy of FMD was established. Increased seasonal risk, as several authors have reported, movement of animals and variation in the immune status because of population turnover could also be implicated. Cyclical incidence of the disease could be showing variations in populations related to husbandry cycle and change of field serotypes. The endemism characterized two different epidemiological areas in the province: the northern area and the southern area. The last one had better conditions than the former for outbreak presentations, specially the southwestern area, which had a higher rate of populational turnover. The annual movement of outbreak centers was given probably for a partial vaccination coverage, a incoming of susceptible animals and virus carrier presence.

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