EPIDEMIOLOGICAL DYNAMIC OF CATTLE LAMENESS IN DAIRY FARMS IN IRAN

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A comprehensive analysis of cattle lameness epidemics in dairy farms in Iran has been carried out to assess the past, present and the future status of this most serious health problem. From the analysis of data, recorded between March 1979 and March 1996, it was revealed that from 458 outbreaks in 486 dairy farms, total population of 170100 cows, 14841 cases of lameness had occurred. The mean annual prevalence over the whole period was 26.94% and digital skin lesions, mostly digital dermatitis, were responsible for 69.18% of all cases. A negative trend between affected herds and the herd size was assessed as significant. A seasonal occurrence was, apparently, noticeable in different parts of the country. Although data analyses suggest management or changes in the weather to be, likely, responsible for the rise in the number of outbreaks, some other factors must be accountable for the dramatic increase in the incidence of lameness in the past 5 years.

For the past recent decades, lameness has been reported throughout the world as a substantial economic and health problem in dairy cattle. In Iran, until late 1970s, the disease used to be sporadically recorded in dairy farms and dairymen did not consider it a production dilemma. However, lameness has recently become very prevalent in dairy farms, throughout the country, and one of the main causes of economic loss. The objectives of this countrywide survey were to assess the dynamic pattern of lameness over the past 17 years, to map the causal lesions, to highlight the associated factors for better understanding of the past- and the present-situation of the problem and suggest biosecurity procedures that ought to be employed in the future.

Data recorded between March 1979 and March 1996 has been analysed. The recording procedures have been based on a retrospective survey using standardized and structured forms. For each episode of lameness and about each lame cow, these forms were completed jointly by the author, veterinary practitioners and dairy managers. The prevalence of lameness was calculated for each outbreak as the proportion of cows with score 3 or more considering the proposed locomotion scoring and lesion coding system suggested by Greenough and Vermunt 1994. Therefore, only the clinically most important lesions associated with an episode of lameness were included in the analysis.

Through the manipulation of the data, it has been revealed that during the period under survey in a population of 170100 dairy cows 458 outbreaks of lameness, consisting 14841 cases of lame cows, had occurred with a prevalence rate of 94.24 per 100 dairies (458/486) showing mean annual prevalence of 26.94%. In the past 17 years the number of lameness outbreak per year has been steadily on the rise, from 4 in 1979 to 46 in 1996, spreading significantly from capital to the north and west of the country. The proportion of affected herds decreased with the increase of the herd size and the χ^2 test assessed the statistical significance of this apparently negative trend. By using the time series analysis with three months moving average, apart from the summer time in the Caspian Sea area and winter to spring months in the rest of the country, a solid seasonal pattern could not be apprehended. Results also showed that digital skin lesions, mostly digital dermatitis, were responsible for 69.18 percent of all the lameness. Horny structure lesions due to subclinical laminitis were estimated to be less prevalent. Although our analyses suggested that management or changes in weather seemed to have triggered the increasing in the number of outbreaks of lameness, nonetheless, it is postulated that something drastic must have been changed in the past 5 years to account for the dramatic increase in the incidence of lameness due to digital dermatitis in Iran.

REFERENCES
Greenough P.R., Vermunt J. 1994. In search of an epidemiological approach to investigation bovine lameness problems. Proceedings of eighth international symposium on disorders of the ruminant digit and international conference on bovine lameness, BANFF, CANADA, 186-196.

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