Epidémiol. santé anim., 1997, 31-32

PREVALENCE AND HERD-LEVEL RISK FACTORS OF BOVINE BRUCELLOSIS IN FAMILY AGRICULTURE SYSTEMS IN CENTRAL CHILE

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L'épidémiologie de la brucellose bovine (BB) dans un système de production familial de la municipalité de Maria Pinto a été étudiée dans le cadre d'un projet visant au développement d'un service local de santé animale. Les troupeaux furent testés pour la BB et les prévalences de 1995 et 1996 sont comparées. Les pratiques de gestion, soupçonnées d'être associées à la présence de BB et à l'infection de nouveaux troupeaux durant une année, furent testées statistiquement. Contrairement à la pensée commune, la prévalence des troupeaux et des animaux était élevée et comparable à celle observée dans les troupeaux commerciaux de la région. Les facteurs liés à la présence de la maladie, (la taille des troupeaux, pratiques intensives de production et historique des avortements) sont les mêmes que ceux mis en évidence par d'autres études épidémiologiques dans les troupeaux commerciaux. Cependant, la répartition géographique est différente et ce dû, probablement aux contacts entre animaux de différentes fermes rendus possibles par les pratiques de déplacement de bétail.

The animal and herd prevalence, distribution and herd-level risk factors of bovine brucellosis (BB) in family livestock systems in the Municipality of María Pinto in central Chile, were investigated as part of a project aimed at developing a local animal health service to improve the efficiency of national disease control programs.
Between May and July 1995, 2,222 cattle (166 herds) and 3,212 cattle (232 herds) in the same period of 1996, were screened for antibodies against *Brucella abortus* using the Rose Bengal Plate Test and confirmed by the Complement Fixation Test .

Results showed that 23.5% and 27.2% of the herds and 4.9% and 5.8% of animals, for 1995 and 1996 respectively, were BB-positives. Of the herds positive to BB in 1995, 89% remained positive and 11% became negative in 1996, whereas of the herds negative for BB, 80% remained negative and 20% became positive.

Odds ratio calculations showed that herd size, use of technical assistance, geographical location, recent history of abortions and the use of practices linked to intensive milking management, were significantly associated with *B. abortus* infection ($p<0.05$). The same factors were identified as possibly contributing to a change in the herd BB status over a one year period, adding management skills of the producer as risk factor. The multiple logistic regression model included herd size ($p=0.007$) and geographical location ($p=0.018$) for the BB herd status in 1995, whereas herd size ($p=0.013$), geographical location ($p=0.04$) and management skills ($p=0.032$) were included in the model for herds that changed their BB status.

Results of animal and herd prevalence were more comparable to regional studies of commercial farms (SAG, 1991) than to a similar study of small-scale producers in Chile conducted in the south of the country (Naranjo, 1991). Management factors significantly associated with the presence of a reactor agree with results from other epidemiological studies in commercial farms. However, these similarities should not overshadow the marked differences in management such as daily, periodic and permanent movement of animals, which are likely to play a role in the epidemiology of BB although in this study they were not proved to be statistically significant. Not many cases of human brucellosis have been reported in the region, however the findings of the study suggest a need to investigate the relationship between BB in animals and humans in rural areas.

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