Epidemiological study of the main infectious abortifacient diseases in Morocco.

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Objectives

In cattle, abortions deserve particular attention because of their heavy economic and hygienic impact.

The aim of the present work is to carry out an epidemiological study of abortion frequencies in dairy cows during the 2022-2023 agricultural season in Morocco's main dairy basins, namely the Loukkos, Gharb, Fès, Chaouia, Doukkala, Tadla, Souss Massa and Laâyoune regions.

Material and methods

The epidemiological survey covered 77 farms with a total of 33,463 head of adult female cattle. The study also included serological investigations into the main infectious abortifacient diseases, particularly brucellosis (*Brucella sp.*), Q fever (*Coxiella burnetii*), leptospirosis (*Leptospira*hardjo), salmonellosis (*Salmonella* dublin), neosporosis (*Neospora caninum*), and bovine Herpes virus 4 infection.

The serological survey covered a total of 535 randomly selected adult females of dairy breeds of different ages. Serological screening for brucellosis was carried out using the Rose Bengal Test, while serological screening for the other five infections was carried out using an indirect ELISA test. For Q fever, in addition to serological analysis, biomolecular PCR screening was carried out on bulk tank milk (BTM). This involved 72 samples of BTM from 57 farms and 11 collection centers representing between 18 and 43 small farmers with a total of 1600 lactating cows. Four large farms had two tanks.

Results

The survey data revealed an overall abortion frequency of 14.2% for the 2022-2023 year. Abortion frequencies varied from region to region, ranging from 2.1% in the Fez region to 17.6% in the Loukkos and Gharb region. The average intra-farm abortion rate was 5.4%.

Serological analyses showed that all the abortifacient agents investigated were present in the 7 regions where investigations were carried out. BoHV-4, Neosporosis, Q fever and leptospirosis infection showed seroprevalence levels of 59%, 56%, 31% and 27% respectively. Overall seroprevalence of brucellosis was 3.4%, particularly in the Loukkos, Gharb, Chaouia and Doukkala regions. The overall seroprevalence of salmonellosis at animal level was 3.6%, with the absence of infection in the Fes and Laâyoune regions. Neosporosis, BoHV-4, Q fever, leptospirosis, salmonellosis and Brucellosis were found in 91%, 81%, 63%, 44%, 13% and 7,8% of farms respectively. At herd level, prevalences were 55% for BoHV-4, 48% for neosporosis, 24% for Q fever, 16% for leptospirosis, 7.8% for brucellosis and 3% for salmonellosis.

Among cows aborted in the 2022-2023 campaign, seroprevalence rates were 59% for BoHV-4, 44% for neosporosis, 22% for Q fever, 15% for leptospirosis, 7% for salmonellosis and 3.7% for brucellosis. It should be noted that 22% of cows were found to be seronegative for all infectious agents.

Biomolecular analysis of BTM revealed that 49% of samples were positive for the Q fever agent. Only one collection center out of 11 was positive. This shows that the bacterium is actively circulating in almost one herd in two mostly in medium and large dairy farms. Furthermore, 36% of ELISA-positive farms were PCR-negative, and only one ELISA-negative farm was PCR-positive.

Conclusions

Based on the results of this study, it is recommended that a bovine abortion control program should be implemented in Morocco, based on health surveillance, accurate laboratory diagnosis and medical prophylaxis.