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Reduce losses from *Neospora caninum* through serological testing

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Neospora caninum is one of the leading causes of abortion and decreased reproductive efficiency in cattle.[1,2] This protozoan parasite is insidious, often with abortion as the only obvious sign of disease. Median economic cost of *Neospora* abortion has been estimated at ~$12,000 per herd in the United States[3], with additional losses of $128 per infected cow due to decreased milk production[4]. Vaccine efficacy for this disease is questionable and no effective treatment exists, therefore diagnostic testing by serology is the mainstay of disease control. Positive serology indicates current infection, as there is no way to eliminate the parasite once an animal is infected.

Fortunately, the solution for effective control in an infected herd is relatively simple and straightforward. Transmission of infection from dam to calf is extremely efficient (>80%).[1,3] Therefore, if all breeding females are tested, calves subsequently born to seropositive dams are presumed to be infected. These animals should not be used as replacement heifers as they will propagate infection in the herd and are at high risk of abortion if bred.[1] Purchased replacement heifers should also be tested prior to acquisition to ensure they are seronegative.[5] This focus on raising and purchasing negative replacement heifers should lead to a dramatic reduction in herd seroprevalence and associated financial loss within just a few years.[1]

Serologic testing should also be utilized in cases of abortion, along with examination of aborted fetuses, in order to determine whether *N. caninum* has been introduced to the herd.[5] Although infection cannot be transmitted between cattle, the parasite's natural life cycle involves horizontal transfer from infected canids to any one of several intermediate host species, including cattle. When this occurs in a naïve herd, an abortion storm can result. Therefore, wild and domestic canids should be prevented from accessing and potentially contaminating cattle food and water sources. All tissues associated with abortion should be disposed of promptly in order to prevent ingestion by canids, which can perpetuate the infection cycle.[5] Producers can explore other advanced management options by consulting with a veterinarian.

Abortion is a serious issue for cattle producers, as their livelihood is based on successful bovine reproduction. *N. caninum* serology plays a pivotal role in control of this problem by identifying targets for appropriate management intervention. By investing in strategic serological surveillance, abortion risk can be greatly reduced, resulting in improved financial return.

References

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[5]Dubey JP et al. 2007. *Clin Microbiol Rev* 20(2):323-367.