CHAPTER VII
FUTURE RESEARCH DIRECTION

Investigation of N. caninum infection in swamp buffaloes in other provinces with larger sample sizes

The investigation was conducted in only 5 provinces in Northeast Thailand. Although the sample collection was random, the distribution of the samples was unequal among provinces. To achieve a better understanding of *N. caninum* infection status in swamp buffaloes, future research should be performed in larger sample sizes and equal distributive samples.

Investigation of the vertical transmissions of the disease in swamp buffaloes

Results derived from research suggested that the vertical transmission of the disease in swamp buffaloes in Northeast Thailand might be low. However, the study did not examine the antibodies to *N. caninum* of the dam-calves at birth to verify the suggestion. Studies to examine the serostatus of the dam-calves pre-colostrum will provide a clear understanding of the efficiency of the vertical transmission in swamp buffaloes.

Examination of effects of N. caninum infection on the reproductive and productive performance of swamp buffaloes

In this research, effects of the *N. caninum* infection on the early conception rate of swamp buffaloes were not uncovered. However, neosporosis is now recognized as an important cause of abortion in dairy and beef cattle. Future research is required to investigate the influence of the disease on the abortion, other reproductive parameters and production of swamp buffaloes. An increase in number of buffaloes in study, and use of both natural mating and artificial insemination will confer higher number of pregnant buffaloes. Furthermore, the inoculation of pregnant buffaloes with parasite is also a prospective method to examine impact of *N. caninum* on the reproductive criteria of

swamp buffaloes.

Isolation of N. caninum strain in Thailand

In the present study, the demonstration of the *N. caninum* DNA from swamp buffalo whole blood was not successful. It could be due to the single sampling at the chronic stage of the disease which resulted in low amount or absence of *N. caninum* DNA in the samples. Repeated sample collection may increase the chance to successfully amplify *N. caninum* DNA. Furthermore, aborted fetuses may be a good resource of samples for both *N. caninum* DNA examination and isolation *N. caninum* strain(s) in Thailand. The combination of both serological test such as ELISA, IFAT and molecular test will also improve the probability of finding the parasite.

Comparison of the susceptibility of different species to N. caninum

In one location in Khon Kaen province, prevalence of infection in beef cattle was significantly higher than that in swamp buffaloes though they shared the same fields and environment. This finding suggested that beef cattle might be more vulnerable than swamp buffaloes to the parasite. A study on infective dose in each species will provide clearer understanding of this aspect.

Investigation of N. caninum infection in dogs from the area that had positive animals

Dogs are definitive host of the parasite and play an important role in the spreading of the disease. Also, the presence of dogs in animal farms in Northeast Thailand was frequent. However, in Thailand there was only one available study on the prevalence of antibodies to *N. caninum* in farm dogs in central part. Research on the infection status in dogs and their role in surviving the existence of the disease may be beneficial to the prevention and control of neosporosis in Thailand.