

Noppawan Buamitoup 2009: Infection of *Brucella melitensis* in Dairy Goat Herds in Nonthaburi, Pathum Thani and Ayutthaya Province: Prevalence and Risk Factors; Knowledge, Attitude and Practice of Farmers; and Diagnostic Tests Agreement Evaluation. Master of Science (Veterinary Epidemiology), Major Field: Veterinary Epidemiology, Department of Veterinary Public Health and Diagnostic Services. Thesis Advisor: Associate Professor Theera Rukkwamsuk, Ph.D. 149 pages.

The objectives of this study were 1) to determine herd and individual prevalence of brucellosis, and to study risk factors of *Brucella melitensis* infection in dairy goats in Nonthaburi, Pathum Thani, and Ayutthaya province, 2) to study knowledge, attitude, and practice toward brucellosis prevention and control program of dairy goat-raising farmers in Nonthaburi, Pathum Thani, and Ayutthaya province and 3) to evaluate agreement of diagnostic test for brucellosis including Rose Bengal Test (RBPT), Modified Rose Bengal Test (mRBPT), Complement Fixation Test (CFT), and Indirect Enzyme-Linked Immunosorbent Assay in house (iELISA-i) for both (iELISA-i) and commercial iELISA (iELISA-c). The first study used 1,265 goat serum to determine seroprevalence of *B. melitensis* infection. Moreover, risk factors were analyzed with chi-square, and odds ratios were showed. The second study was performed in 50 farmers, who were interviewed with a questionnaire. Data were analyzed using descriptive statistics, t-test, and chi-square test. And, the third study evaluated agreement among results from 5 diagnostic tests for brucellosis, including RBPT, mRBPT, CFT, and 2 iELISA to test 360 serum from infected herd and 335 serum from free herds. Kappa value, sensitivity, specificity positive predictive value and negative predictive value were calculated.

The first study found that the average seroprevalence were 6.25 % at herd level, and 0.25 % at individual level. The only risk factor of seropositive for *B. melitensis* infection from this study was herd the with history of brucella infection. The second study showed that knowledge of farmers was associated with attitude and practice toward brucellosis prevention and control program. However, attitude was not associated with practice toward brucellosis prevention and control program. The third study indicated that result from mRBPT and both iELISAs had a perfectly agreement. The comparative of these tests with CFT, as a standard method, showed that the height of Youden index from mRBPT and iELISA-i is the first and the second value. Therefore, increasing knowledge for farmers and encouraging the establishment of brucellosis free farm should be done. Moreover, serial tests of mRBPT and CFT were recommended to use in dairy goats.

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Thesis Advisor's signature