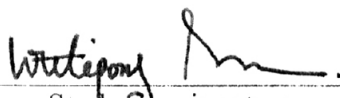


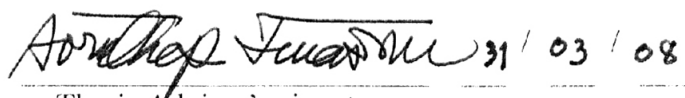
Wutipong Intaratham 2008: Evaluation of Breeding Objective for Thai Indigenous Cattle. Doctor of Philosophy (Animal Science), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Associate Professor Sornthep Tumwasorn, Ph.D. 106 pages.

Combined data of four lines of Thai indigenous cattle born between 1993 and 2004 were used to examine fixed effects for weight and body measurements i.e. birth, weaning and yearling age. The data were also used to estimate the (co)variances and genetic parameters. Analyses were carried out with univariate and bivariate animal models using average information restricted maximum likelihood procedure. Herd and line-year-season of calving and sex had significant influence on birth, weaning and yearling traits. Male calves had greater values for all traits than female calves. Age of dam had significant influence on birth and weaning traits ($P < 0.001$). Age of animal had a significant influence on weaning and yearling traits ($P < 0.001$).

The estimates of direct and maternal heritabilities for birth traits ranged from 0.09 to 0.30 and 0.09 to 0.18, respectively. The estimates of direct heritabilities and maternal permanent environmental effects for weaning traits ranged from 0.15 to 0.28 and 0.14 to 0.25, respectively. The estimates of direct heritabilities for yearling traits ranged from 0.26 to 0.43. The genetic correlations between weight and body measurements ranged from 0.34 to 0.98. Thus, the selection to increase weight traits would increase body size as well.

Production and economical data were used to develop profit function for breeding objective and selection traits. The breeding structures relevant to Thai indigenous cattle were evaluated for their genetic gains and economic parameters. A population with a nucleus herd of 1,500 cows, supplying bulls to a total population of 800,000 cows was assumed with the investment period of 20 years. The economic weights of breeding objective traits i.e. cow weaning rate, sale weight and mature cow weight were positive. The genetic gain per year for growth traits (WW, YW, CoW), body measurement (GIR4, HH4, STP4) were gained positive. For reproductive traits, SC and CoWR gain was positive. For DtoC and AIC gain was negative. The genetic gain per year for breeding objective was 96.85 baht. The total calculated returns, cost and profit per cow in the population from one round of genetic selection were 317.26, 22.27 and 294.99 baht, respectively.


Student's signature

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Thesis Advisor's signature