THE REPRODUCTIVE PERFORMANCES OF MURRAH AND SWAMP BUFFALOES IN THAILAND

Thiamphop Kanloung[1], Duangkamol Taemchuay[1] Ranchuan Hengtrakunsin[2] and Piyada Tavitchasri[1,*]

ABSTRACT

The aimed of this research was to study reproductive performances of Murrah and swamp buffaloes. The data of reproductive performances were collected from 98 buffaloes during period 2001 to 2013 on Murrah farm is located in Chachoengsoa province, Thailand were analyzed to study the effects of difference buffalo types on service per conception, age at calving, calf birth weight and calving interval. The service per conception was significantly ($P<0.05$) influenced by buffalo type only in 1st parity. Additionally, the service per conception and calving interval were reduced by the number of parity increase. The age at first calving of buffaloes in swamp buffalo type was significantly ($P<0.05$) higher than that of Murrah buffalo (4.16±0.89, 3.79±0.50 years). In case of calf birth weight at all parity, Murrah buffalo was lower than swamp buffalo and non-significant, except 2nd parity.

Keywords: *Bubalus bubalis*, buffaloes, reproductive performance, Murrah, swamp, Thailand

INTRODUCTION

River buffalo (*Bubalus bubalis*) is an economically important agriculture for developing countries, especially in Asia due their uses for dairy milk production, meat production and labor for agriculture. Murrah is the best breed of milk producing buffalo and were used for upgrading to improve swamp buffalo for milk production (Thiruvenkadan *et al*., 2010).The limitations of milk production in swamp buffalo include many conditions such as late maturity, prolonged calving interval, difficulties detecting heat that cause in a lot of service per conception (Chaikhun *et al*., 2012) and resulting in economic losses because reproductive performance is one of the most keys to profitable buffalo dairy industry (Abdall, 2003). The objective of this paper was to study reproductive performances of Murrah, swamp and crossbred (Murrah x swamp) buffaloes under intensive farm in Thailand.

MATERIALS AND METHODS

The data of reproduction was collected from 98 buffaloes from 2001 to 2013 on Murrah

[1]King Mongkut's Institute of Technology Ladkrabang, Prince of Chumphon Campus, Chumphon, Thailand, *E-mail: piyda.ta@kmitl.ac.th

[2]Murrah Dairy Company Limited, Plangyao, Chachoengsao, Thailand

Table 1. Least-square means (±S.E.) for reproductive performance of dairy buffalo.

Type of buffaloes	Reproductive performance							
	Service per conception		Age at calving (years)		Birth weight (kg)		Calving interval (days)	
	Number (head)	Mean±S.E.	Number (head)	Mean±S.E.	Number (head)	Mean±S.E.	Number (head)	Mean±S.E.
	1st Parity							
Murrah	59	8.05±4.24[a]	44	3.79±0.50[a]	94	27.32±4.97[a]	-	-
crossbred	16	1.12±0.34[b]	4	3.59±0.60[a]	26	30.19±9.44[b]	-	-
swamp	39	9.89±3.29[c]	37	4.16±0.89[b]	48	28.33±6.36[ab]	-	-
Total	114	7.71±4.55	85	3.94±0.72	168	28.05±6.29	-	-
	2nd Parity							
Murrah	71	6.14±3.82[a]	33	5.34±0.59[a]	75	29.30±6.11[a]	75	587.65±178.80[a]
crossbred	4	1.25±0.50[b]	2	4.67±0.30[a]	7	31.85±6.17[ab]	7	507.00±158.16[a]
Swamp	45	5.37±3.49[a]	33	5.43±0.85[a]	47	33.57±4.97[b]	46	526.39±171.49[a]
Total	120	5.69±3.73	68	5.37±0.73	129	30.99±6.03	128	561.22±176.76
	3rd Parity							
Murrah	55	4.63±3.22[a]	21	6.48±0.61[a]	60	31.13±6.74[a]	60	480.36±168.70[a]
swamp	35	4.51±2.77[a]	22	6.56±0.83[a]	39	34.05±6.84[a]	37	481.05±135.07[a]
Total	90	4.58±3.04	43	6.52±0.72	99	32.28±6.90	97	480.62±155.99
	4th Parity							
Murrah	45	3.53±2.05[a]	11	7.54±0.75[a]	49	31.87±5.79[a]	49	448.83±133.17[a]
swamp	27	3.96±2.56[a]	13	7.52±0.85[a]	28	33.23±7.27[a]	28	447.64±98.51[a]
Total	72	3.69±2.24	24	7.53±0.79	77	32.37±6.36	77	448.40±121.03
	5th Parity							
Murrah	36	3.44±1.90[a]	4	8.72±0.63[a]	34	31.44±6.92[a]	36	412.88±70.84[a]
swamp	19	4.26±2.64[a]	6	8.65±0.94[a]	18	33.47±6.86[a]	19	499.68±151.90[b]
Total	55	3.72±2.19	10	8.68±0.79	52	32.14±6.90	55	442.87±112.60

Table 1. Least-square means (±S.E.) for reproductive performance of dairy buffalo. (Continue.)

Type of buffaloes	Reproductive performance							
	Service per conception		Age at calving (years)		Birth weight (kg)		Calving interval(days)	
	Number (head)	Mean±S.E.	Number (head)	Mean±S.E.	Number (head)	Mean±S.E.	Number (head)	Mean±S.E.
	6th Parity							
Murrah	23	2.78±1.70[a]	3	10.21±0.22[a]	24	29.48±10.45[a]	25	412.64±94.52[a]
swamp	10	3.50±2.12[a]	2	9.38±0.89[b]	10	32.75±6.06[b]	10	452.70±148.82[a]
Total	33	3.00±1.83	5	9.88±0.48	34	30.44±9.40	35	424.08±111.83
	7th Parity							
Murrah	12	2.33±1.30[a]	-	-	12	33.00±4.86[a]	12	386.58±43.97[a]
swamp	4	3.00±2.00[a]	-	-	4	38.00±3.36[a]	4	409.50±75.91[a]
Total	16	2.50±1.46	-	-	16	34.25±4.05	16	392.31±51.72
	8th Parity							
Murrah	4	1.50±0.57[a]	-	-	4	33.75±2.06[a]	4	415.75±129.00[a]
swamp	3	3.33±0.57[b]	-	-	3	34.66±1.15[a]	3	488.66±157.09[a]
Total	7	2.28±1.11	-	-	7	34.14±1.67	7	447.00±134.40

farm located in Chachoengsoa province Thailand, which is the only one intensive buffalo dairy farm from Murrah with swamp and crossbred buffaloes. The reproductive performance parameters such as age at first calving, gestation length, service per conception and calf birth weight were analyses as least-mean (±S.E.). The types of buffalo were also investigated assuming the following mathematical model:

$$y_{ij} = \mu + bg_i + e_{ijk}$$

where y_{ij} = Observation of reproductive performances; μ = Overall population means; bg_i = Effect of jth type of buffalo; e_{ijk} = Random error

RESULTS AND DISCUSSIONS

The overall least-square mean for age at first calving was 3.94±0.72 years (n=85) (Table 1), which it same value (47.1±8 months) reported for swamp buffaloes on the same farm (Chaikhun *et al*., 2012). This is in agreement with the findings in Sabah, Malaysia (Othman *et al*., 2014). The type of buffalo was found to have significant ($P<0.05$) effect on age at first calving, service per conception and calf birth weight at 1st parity. It shows that age at first calving, service per conception and calf birth weight of crossbred buffalo had better than Murrah and swamp buffalo. The results of the present research were not in agreement with the results of Dung (2005). In the 4th to 8th parity, service per conception and calving interval of Murrah had better than swamp buffalo. It was reported that the calving interval for buffalo ranged between 559.6 days for Murrah in India (Thiruvenkdadan *et al*., 2010) and 740 days for Murrah crossbred in Sabah, Malaysia (Suhaimi and Saad, 2012).

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