

CROSSBREEDING OF THAI LOCAL CATTLE WITH
AMERICAN BRAHMAN AND CHAROLAIS SIRES

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INTRODUCTION

Breeds such as American Brahman and Charolais have recently become available in Thailand. Crossbreeding with Thai native cattle has been promoted by Government agencies however, performances of crossbred animals within different environments have not been thoroughly investigated. This study presents preliminary information comparing the productivity of the crossbreeds with native cattle.

MATERIALS AND METHODS

Research was conducted at the Livestock Research Station, Kasetsart University, Kamphaengsaen Campus which is about five meters above sea level with a sandy loam soil and a mean annual rainfall of 1,260 mm. During the wet season cattle grazed grass (*Brachiaria mutica*) and received a mineral supplement: during the dry season they grazed native pastures and received a supplement containing urea, molasses and minerals. The breeding season was restricted to May to July of each year. Using A.I. for cycles and bulls for the last month.

There were 160 natives, 46 Brahman cross, 68 Charolais cross calves at the beginning of the study in 1973 and 64, 43 and 19 records of these respective animals at the end of the study in 1980. The following parameters were recorded: age at first calving, number of services per conception, calving interval, gestation period, mortality rate, conception rate, calving rate, liveweight, and heterosis effects.

RESULTS AND DISCUSSION

Indigenous cows reached maturity at 26 months and took around 33 months (± 0.5) to deliver their first calves; charolais crossbred cows took around 43 months (± 0.8) to produce the first calves while the Brahman

crossbred cows required around 48 months (± 0.7). Such values are common in the region (Holmes, 1980). The average number of services required for conception was 1.4 (± 0.7) for native cow inseminated with Charolais and Brahman semen and 1.5 (± 0.5) and 1.7 (± 0.8) for Charolais and Brahman crossbred cows inseminated with Charolais and Brahman semen from upgrading purpose, respectively. These figures are higher than those recorded by Chantalakhana *et al.*, (1978) for Thai native cows.

Calving intervals were 1.4 (± 0.5), 1.6 (± 0.5), and 1.9 (± 0.5) for native, Brahman crossbred, and Charolais crossbred cows respectively. Tumwasorn (1979) has reported an average of 1.3 years from different Zebu breeds raised in the Northeastern part of the country. Holmes (1980) reported that the Javanese Zebu raised in good conditions of Papua New Guinea and the Brahman crossbreds raised under poor conditions showed calving intervals of 1.2 and 2.5 years respectively.

Native cow had the shortest gestation period of 283 days as compared to the averages of 286 and 287 days of the Charolais and Brahman crossbred cows respectively. Gestation periods for male calves were an average of three days longer than for female calves.

Mortality rates of calves were higher for first calving than for subsequent calvings (7.4 % c.f. 1.4 %). Calf mortality rates were lower for native dams (5%) than for crossbred dams (a mean of 13%); such a result is in agreement with other work (Plasse, 1973). Conception rates, as determined by rectal palpation, of native and Brahman crossbred dams were similar (84%) and higher than that of Charolais crossbred dams (68%); weaning percentage were 65 and 49 respectively. The rate of biomass production to weaning of Brahman cross dams was 65 kg compared to 59 kg from both native and Charolais cross dams; all values are low compared to studies conducted elsewhere (Plasse, 1973).

Table 1 Mean liveweights (kg) and standard deviations at five ages for calves born to dams of three breeds

Breed of Dam	Age (months)				
	Birth	7	12	18	>60
Native	15.5 (2.1)	88.0 (19.1)	117.3 (22.8)	126.9(19.3)	281.1(23.5)
Brahman	19.9 (3.7)	101.2 (17.5)	130.8 (21.9)	156.7(17.6)	381.4(30.8)
Charolais	21.3 (4.1)	119.6 (36.2)	147.1 (21.1)	187.3(25.7)	430.7(73.1)

The liveweights of calves born to the three breed types are presented in Table 1. Calves born to Charolais cross dams were consistently heavier at any given age while native calves were always lighter. The figures presented here are supported by earlier studies (Chantalakhana *et al.*, 1978). Average daily gains were ranked in the same order for the periods; preweaning, yearling, and post yearling.

The heterosis effect on liveweight indicates an increase of around 36% for calves born to Charolais cross dams and 20% for those born to Brahman cross dams. The study indicates an advantage to crossbreeding under rather restricted to research stations and equivalent environmental conditions.

ABSTRACT : Thai native cattle were of lower age at first calving, required a lower number of services per conception, had a shorter gestation periods, lower calving intervals, and lower calf mortality rates than Brahman and Charolais crossbreds. Charolais crossbred had the highest weights at various ages while the Thai native cattle had the lowest weights.

R E S U M E N

El ganado vacuno nativo Thai demostró menos edad en el primer parto, requiriendo un número menor de servicios por concepción teniendo periodos de gestación más cortos, menos intervalos entre partos y menos mortalidad en los terneros que los cruces con Brahman y Charolais. El Charolais tuvo el más alto peso a las diversas edades, mientras que el ganado nativo Thai tuvo pesos menores.

LITERATURE CITED

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