

## The Effects of Supplementing Bali Cattle (*Bos sondaicus*) Calves prior to Weaning on the Subsequent Reproduction of their Dams

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The high calf mortality in West Timor (Jelantik 2008a) is presumed to be caused by the majority of calves being born in the dry season when feed resources are low in quality and quantity, leading to milk production as low as 1.5 L per day (Belli, 2002). During the dry season, all cattle, particularly calves suffer from severe under nutrition which inhibits calf growth and reduces resistance to diseases. Work by Jelantik et al (2008b) demonstrated that temporarily separating calves from their dams and supplementing them during the day increased the survival and growth rates of the calves. This study was conducted to determine the effect of temporary calf removal during daylight on the subsequent reproductive performance of the cows.

The experiment was carried out in three sub-districts of the Kupang District of West Timor (Kupang Timur, Kupang Tengah, and Taebenu) in 2007 and 2008. A total of 130 cows were assigned soon after calving to two groups of 65 cows each (treatment and control). Most of the calves were born between May and July (83% of the treated calves and 85% of the control calves). The calves of the treatment group were kept in a sheltered pen during day time and received a supplement containing 18.6% crude protein at the rate of 2% calf body weight, while the dams were left to graze native pasture (calves and cows were reunited at night for suckling). The calves in the control group remained with their dams for the entire period (24 hours) and without supplementation. There was no bull control and calves were not always weaned. Reproductive traits that were recorded included the postpartum interval to conception (month); calving rate (%); and calving interval (month). Student t-test and chi-square analyse (SPSS, 2005) were used to examine the differences in reproductive data between the 2 groups. Results are presented in Table 1.

**Table 1. The Effect of calf supplementation and temporary withdrawal during daylight on the subsequent reproductive performance of the Bali Cattle dams**

| Item                                      | Treatment Group (n=65) | Control Group (n=65) |
|---|------------------------|----------------------|
| Postpartum interval to conception (month) | 4.82 <sup>b</sup>      | 6.26                 |
| Calving interval (month)                  | 13.82 <sup>b</sup>     | 15.26                |
| Calving rate (%)                          | 85.9 <sup>ns</sup>     | 86 <sup>ns</sup>     |

<sup>b</sup> Significantly different from the control group (p<0.01. t-test). <sup>ns</sup> not significantly different (p>0.05)

The results of this research demonstrated that removal and supplementation of calves during daylight hours reduced the post partum period to the next conception (from 6.26 to 4.82 months, p<0.01), decreased the intercalving interval (from 15.26 to 13.82 months, p<0.01), but did not affect the calving rates 86% for the control group and 85.9% for the treatment group) (Table 1). Griffith and Williams, (1996) reported that beef cows that are restricted to once daily suckling for 20–30 min, with complete calf isolation, advanced the interval to first postpartum ovulation compared with *ad libitum* calf access/suckling. A shorter intercalving interval will lead to a higher calving rate in the following years. It may also lead to calves being born earlier in the calving period, when nutrition is better for the dam. One of the authors (Kune unpublished data 2008) has also observed that the calving period is less variable among cows whose calves were supplemented the previous year. This research was funded by The Australian Centre for International Agricultural Research, project LPS/2006/005.

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