

EFFECT OF WEANING AGE ON POST-PARTUM ANOESTROUS OF PERANAKAN ONGOLE COWS UNDER SMALLHOLDER FARMERS IN EAST JAVA

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ABSTRACT

The study was conducted with using survey and monitoring methods periodically on smallholder farmers in East Java, Indonesia. The locations of the research consist of five regencies and 10 districts in East Java, respectively. Three hundred Purebred Ongole/Peranakan Ongole (PO) cows were monitored and only seventy of them recorded and divided into six groups at weaning age of calf, namely (days) : 40-59 (A), 60-79 (B), 80-99 (C), 100-119 (D), 120-139 (E) and > 140 (F). The parameters monitored and measured were post-partum anoestrous (PPA) live weight and feed supply every month. The data is analyzed by completely randomized design unequally. The average daily gain (ADG) of PO cows was not significantly different between groups; but the PPA of PO cows was different between group A compared with group C, D, E, F ($P < .05$). However between the group AB, BC, CD, and DEF were not significantly different and the number of animals on group F was the greatest of all. The effect of weaning age of calf (separated), especially on group A (40-59 days) and group B (60-79 days) of PPA period were lower than the other groups (80- >140 days); therefore, ADG on group A and B were lower (-297 and -150 g/head/day) than group C, D, E, F. These results of the research showed that PPA and ADG of PO cows at weaning age of 40-59 and 60-89 days on smallholder farmers were better than the others (80 - >140 days).

Key words : PO cows, Weaning age, Post-partum anoestrous, Average Daily Gain, Smallholder farmers

INTRODUCTION

In East Java, The PO cows generally are not restricted suckling by the calf from all day night after calving. The calves are not separated for 24 hours (free suckling) until the weaning (Yusran and Affandhy, 1996) and the calves are usually weaned at about three up to six months old (Komarudin-Ma'sum *et al.*, 1993); Therefore the period of post-partum anoestrous is high and it is cause long calving interval of cow. Separation of calf could effect the productivity of cow, especially on efficiency of post-partum anoestrous and ovarian activity (Gaya *et al.*, 1978; Chipepa, 1990). This is causes the long post-partum anoestrous of cow and the average daily gain experience decreases which will cause long calving interval (Wahab, 1988).

A calf will likely go twice as long as cows not suckling before returning to oestrous (Bearden and Fuquay, 1980). Clapp (1937) cited by Djanuar (1985) reported that stimulus frequency on mammary gland (continuously suckling) will effect post-partum anoestrous period and the extend of the weaning age have correlated by LTH secretion which cause corpus luteum persistence. Anoestrous period between once a day suckling and continuous suckling in cattle (*Bos indicus*) were 57 days Vs 72 days (Blanzer, 1982) cited by Mukasa-Mugerwa, 1989). Well *et al.*, (1985) reported that post-partum anoestrous on Afrikaner cows with suckle and non-suckled were 53 days Vs 186 days.

This research was conducted to know the consequences weaning age of calf on post-partum anoestrous and average daily gain of PO cows on smallholder farmers in

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Table 1. Average daily gain and post partum anoestrous on PO cows between groups (weaning age of calf) in East Java.

Parameters	Weaning age of calf					
	A	B	C	D	E	F
Number of animal (head)	5	12	11	8	9	25
Average Daily Gain (g/day) (for 3 month after calving)	-297	-150	-348	-419	-475	-476
Post-partum anoestrous (day)	60.0 ^d	86.0 ^{cd}	110.6 ^{bc}	117.5 ^{ab}	142.9 ^a	144.3 ^a
A= 40-59 days	C= 80-99 days	E= 120-139 days				
B= 60-79 days	D= 100-119days	F= > 140 days				

East Java, Indonesia.

MATERIALS AND METHODS

Procedure

The study was conducted by survey and monitoring methods periodically on smallholder farmers in East Java since May, 1995 till January, 1996. The locations of the research consist of five regencies and 10 districts in East Java, respectively.

Animal Treatment

Three hundred purebred Ongole/Peranakan Ongole (PO) cows were monitored and only seventy of them recorded and divided into six groups at weaning age of calf, namely (days) : 40-59 (A), 60-79 (B), 80-99 (C), 100-119 (D), 120-139 (E) and > 140 (F). The cows have more four years of age and which have had at least more one calf.

Collected data and Analysis

The parameters monitored and measured were post-partum anoestrous, live

Figure 1. Dry matter and crude protein feed supply of PO cows in East Java

weight every month and feed supply every week. The data is analyzed by completely randomized design unequally.

RESULTS AND DISCUSSION

Post-partum anoestrous and Average daily gain

The average daily gain of PO cows was not significantly different between the groups at weaning age of calf ($P > .05$); but post-partum anoestrous of PO cows was different between group A compared with group C, D, E, F ($P < .05$). However between the group AB, BC, CD, and DEF were not significantly different ($P > .05$) and the number of animals on group F was the greatest of all (Table 1).

Feed Supply

Dry matter and crude protein feed supply on PO cows were not significant differences between groups (see Figure 1), and also requirement of feed supply is still low, especially crude protein supply was only 0.5 - 0.7 kg/head/day.

Discussion

The effect of weaning age (separation of calf), especially post-partum anoestrous period on Group A (40-59 days) and Group B (60-79 days) were lower than the other groups (80->140 days). This is causes average daily gain on Group A and B were lower (297 and -150 g/head/day) than group C, D, E, F (see Table 1), such things stimulated ovarian activities recyclic or normal, so that the visual signs of oestrous on PO cows clear, so separation of the calves are correlated with post partum anoestrous (Gaya *et al.*, 1978; Chipepa, 1990). Well *et al.*, (1985) reported that post-partum anoestrous on Afrikaner cows with suckle and non-suckled were 53 days Vs 186 days and Anoestrous period between once a day suckling and continuous suckling in cattle (*Bos indicus*) were 57 days Vs 72 days (Blanzer, 1982) cited by Mukasa-Mugerwa, 1989); thus, so in PO cows that are suckling calves the post-partum anoestrous period greatly extended, especially at weaning > 140 days of age.

Although dry matter feed supply on Group E and F appear lower than another groups, however dry matter and crude protein feed supply were not significant differences between groups (see Figure 1), this is due the weaning age of calf could effect on post-partum anoestrous of PO cows. So thus the post-partum anoestrous on PO cows more important cause weaning age of calf than feed supply, because their feed supply was not different between groups.

CONCLUSIONS

These results of the research showed that post partum anoestrous and average daily gain of PO cows at weaning age of calf of 40-59 and 60-89 days on smallholder farmers were better than the others (80 - > 140 days).

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REFERENCES

- Bearden, H.J and J. Fuquay. 1985. *Applied Animal Reproduction*. A Prentice-Hall Co. Reston, Virginia. 107 p.
- Chipepa, J. A. S., M. A. Omar, G. Nsofwa, R. Changa and S. Sianangama. 1990. *Short Term Calf Removal to Improve Conception Rates in Angoni Cows*. IAEA Vienna Austria. 137-148.
- Djanuar, R. 1985. *Fisiologi Reproduksi dan Inseminasi Buatan pada Sapi*. Gadjah Mada Univ. Press. 59 p (Translation)
- Gaya, H., B. Hulman and T. R. Preston. 1978. Effect two methods of restricted suckling on performance of the cows and on growth rate of the calves. *Trop. Anim. Prod.* 3:118-124.
- Komarudin-Ma'sum, M.A. Yusran and E. Teleni. 1993. Draught animal system in East Java. In : E. Teleni, R. S. F. Campbell and D. Hofmann. Draught

- Animal System and Management an Indonesian Study, *ACIAR* No 19, Canberra, Australia.11-20.
- Mukasa-Mugerwa, E. 1989. A Review of reproductive performance of female *Bos indicus* (Zebu) Cattle in ILCA. *Monograph* No 6. International livestock Centre for Africa. 59 p.
- Wahab, S., M.R. Jainudeen and K. Azizuddin. 1988. *Monitoring Reproductive Performance of Cross Breed Dairy Cattle on Smallholder Farmers in Malaysia*. IAEA. VIENNA, Austria. 45-58.
- Well, P.L., D.H. Holness, P.J. Freymark, C.T. McCabe and A.W. Lishman. 1985. Fertility in the Afrikaner Cows. 2. Ovarian recovery and conception in suckled and non-suckled cows post-partum. *Anim. Rep. Sci.*, 8:315-326.
- Yusran, M.A. and L. Affandhy. 1996. Studi batasan ideal berat badan dan kondisi tubuh sapi PO induk kaitannya dengan aktivitas reproduksi yang normal dalam agroekosistem lahan kering di Jawa Timur. *Seminar Hasil Penelitian Peternakan Tahun Anggaran 1995/1996*. (In press).