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## Status Praesens of Female Bali Cattle During Oestrous Cycle on Semi Intensive Care System.

## KEYWORDS

status praesens, bali cattle, semi intensive care system, estrous cycle

I Nyoman Suartha

I Gusti Ngurah Bagus  
Trilaksana

I Ketut Gunata

Laboratory of Clinical, Faculty of  
Veterinary Medicine, Udayana  
University, PB Sudirman Street  
Denpasar Bali IndonesiaLaboratory of Veterinary  
Reproduction Faculty of Veterinary  
Medicine, Udayana University, PB  
Sudirman Street Denpasar Bali  
IndonesiaBreeding centre of Bali Cattle  
Sobangan Village Badung Regency

**ABSTRACT** This research was conducted to evaluate the status praesens of female bali cattle during oestrous cycle. Status praesens that examined were the frequency of heartbeat, respiratory frequency and body temperature. The average of heartbeat frequency was  $74.38 \pm 1.78$  times/min, respiration frequency was  $26.94 \pm 1.86$  times/min and body temperature was  $38.01 \pm 0.35$  C. The highest status praesens achieved at estrous phase then decreased until diestrous phase and then increased at the end of diestrous phase. In Conclusion, the status praesens of female bali cattle is likely fluctuated during estrous cycle.

## INTRODUCTION

Bali cattle is a native germplasm of Bali defined as one of seeds sources of bali cattle by the Indonesian government. Bali cattle have advantages in terms of adaptability to the environment and reproduction capability, therefore its suitable for Indonesia to be developed (Kadarsih, 2004). Bali cattle also have socio-cultural function in Bali and elsewhere in Indonesia (Dwatmadji et al., 2004).

Status praesens is current physiological conditions (heartbeat frequency, pulse frequency, respiratory frequency, body temperature) or normal general conditions of an animal. The value of status praesens is a vital symptom that should be examined when performing health monitoring or diagnosis of diseases (Radostits et al., 2004). In common, the value of status praesens that is used on bali cattle for the purpose of diagnosis enforcement of a disease or other purposes, including research, refers to other races of cattle that been published scientifically. However, the references are not necessarily the normal value range status of bali cattle.

Research that concerns on normal status praesens value in female bali cattle during estrous cycle (proestrous, estrous, metestrous and diestrous) has not been done yet. Some researchers only evaluated clinical research of the bali cattle's blood profile (Hartaningsih et al., 1983; Utama and Wirat, 1985; Kendran et al., 2012). Reproductive hormones, such as: estrogen and progesterone, play a role in determining the estrous cycle in female cattle. These hormonal changes affect the status praesens (Payne and Wilson 1999). This study was conducted to evaluate status praesens value of female bali cattle during the estrous cycle.

## Research Method

**Observation of general condition.** General conditions, including: posture, behavior, physical condition, was observed to ensure the bali cattle used as samples were in clinically healthy condition.

**Status Praesens Examination.** Status praesens on heartbeat frequency, pulse frequency, respiratory frequency and body temperature were examined in this study.

**Heartbeat frequency.** Heartbeat frequency was counted by listening heartbeat using stethoscope on the chest area. The examination was done for one minute to calculate heartbeat frequency per minute.

**Pulse frequency.** Pulse frequency was determined by palpating coccygeal arteria (arteria at the ventral area of tail). Pulses of the arteria were counted for a minute to determine pulse frequency per minute.

**Respiration frequency.** Determination of respiratory frequency were determined by putting the back hand of evaluator in front of the cattle nostrils to feel the breath of the cattle for a minute and counted the number of its breath. Examination of the breath frequency was done only when the cattle were relaxed.

**Body temperature.** Body temperature was determined using a digital rectal thermometer. Temperature measurement was stopped after a digital thermometer showed signal as a sign of the maximum body temperature of the cattle.

## Results and Discussion

The observation started at estrous period, and it was designated as day 0. Then it conducted over 21 days while pro-estrous. Observation was done every 3 days at ambient temperature  $\pm 27$  °C. The results of status praesens observation in female bali cattle during estrous cycle presented on table 1.

The value of status praesens was at highest level in the estrous phase (day 0), then it slightly decreased before it steadily increased at the end of diestrous phase. Bali cattle became very active when they were in estrous phase due to increased level of estrogen secretion in their bodies. In active condition, more oxygen supply was needed in the body, resulting an increase of heartbeat, pulse frequency (Webster and Wilson, 1980), respiratory frequency and body temperature (Mullick et al., 2002).

Pulse frequency and heartbeat frequency in bali cattle during estrous cycle had a similar pattern (fig. 1). Pulse

frequency ( $73.01 \pm 1.79$  times/minute) and heartbeat frequency ( $74.38 \pm 1.78$  times/minute) of bali cattle during estrous cycle remain in normal value range of other cow race as reported (Worstell and Brody,2003; Kibler, 1992)

Observation at the beginning of met-estrous phase showed declined pattern of all status praesens values (fig. 1), this is due to decreasing level of FSH and increasing level of LH in blood circulation which implies in muscle contraction, at the 6<sup>th</sup> day of estrous cycle status praesens value showed an increase pattern again.

Status praesens at diestrous phase remained a normal value due to maturation of corpus luteum which releases progesterone. At the end of diestrous,  $\text{PGF}_{2a}$  is released by uterus and causes regresion of corpus luteum. Lack of pro-

gesterone blokade causes follicles develop and increases estrogen secretion.

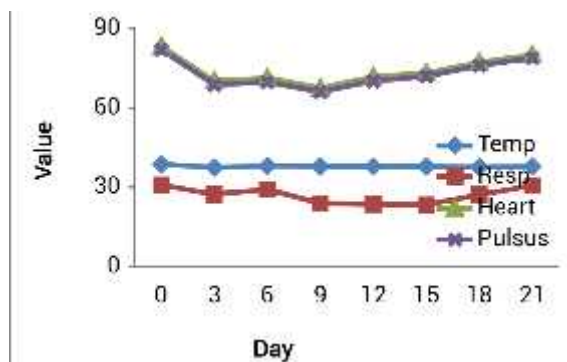
During pro-estrous phase, increasing of estrogen secretion causes an increase of blood supply and development of reproductive tract to appear signs of estrous. High level of estrogen will trigger the release of LH causing ovulation

### Conclusion

Status praesens of female bali cattle seems fluctuated during estrous cycle. The average of status praesens value during estrous cycle for heartbeat frequency was  $74.38 \pm 1.78$  times/minute, respiratory frequency  $26.94 \pm 1.86$  times/minute and body temperature  $38.01 \pm 0.35$  °C.

**Table 1. Status praesens of female bali cattle during estrous cycle (average  $\pm$  SD) times/minute**

Phase	Day	Heart beat	Pulse	Respiration	Temperature
Estrus	0	$83.26 \pm 0.96$	$82.05 \pm 0.92$	$30.77 \pm 1.99$	$38.61 \pm 0.31$
Metestrus	3	$70.24 \pm 1.90$	$68.85 \pm 2.08$	$27.35 \pm 3.38$	$37.48 \pm 0.44$
	6	$71.42 \pm 1.92$	$69.78 \pm 2.12$	$29.11 \pm 3.39$	$38.17 \pm 0.49$
Diestrus	9	$67.59 \pm 0.9$	$66.22 \pm 0.65$	$23.98 \pm 0.64$	$37.95 \pm 0.18$
	12	$71.76 \pm 4.32$	$70.26 \pm 4.28$	$23.46 \pm 1.17$	$37.91 \pm 0.42$
	15	$73.31 \pm 2.52$	$71.93 \pm 2.73$	$23.26 \pm 0.96$	$37.94 \pm 0.36$
	18	$77.29 \pm 0.79$	$76.07 \pm 0.67$	$27.17 \pm 1.50$	$37.69 \pm 0.24$
Proestrus	21	$80.20 \pm 0.93$	$78.91 \pm 0.94$	$30.61 \pm 1.85$	$37.96 \pm 0.38$



**Figure 1. Average value of praesens status in bali cattle during estrous cycle.**

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