

Linear Body Measurements of Bali Cattle (*Bos sondaicus*) Calves Supplemented During the Dry Season in West Timor, Indonesia

C.L.O Leo Penu^A, I.G.N. Jelantik^B, R. Copland^C, M. Mullik^B and A.J Jeremias^A.

^AAgricultural Polytechnic of Kupang, ^BUniversity of Nusa Cendana, Kupang, Indonesia,

^CUniversity of Queensland, School of Animal Studies, The University of Queensland 4343 Australia

A major impediment to the export trade of live cattle from West Timor to Java is the difficulty in cattle achieving the required body size and weight. Most calves are born during the dry season when cows suffer severe undernutrition. This results in milk production as low as 0.79-0.99 kg/day (Wirdahayati and Bamualim, 1994; Jelantik, 2001), the probable cause of poor calf growth. This study aimed to test the effectiveness of increasing calf growth in terms of frame size (linear body measurement) by direct supplementation of calves during the dry season.

This research was conducted between July and November 2007 in several villages in the Kupang Regency, West Timor, Indonesia, using the same supplement, animals and experimental protocol as described by Jelantik et al (2008). Calves from the 180 cow-calf pairs in the treatment groups were allocated supplementation as follows; 1 % (n=78), 2 % (n=60) and 3% (n=42) of calf body weight. There were 54 cow-calf pairs in the unsupplemented control group. Each farmer was allocated calves from one treatment group and the calves were fed together as a group. Calves were weighed by electronic scales each fortnight and supplements adjusted accordingly. Parameters measured were body length (BL), heart girth (HG) and wither height (WH).

Table 1. Increases in linear body size of Bali cattle calves in response to feed supplements during the dry season.

Source	Treatment – level of supplementation				Mean Square Error	P
	Control	1%Bwt	2%Bwt	3%Bwt		
N (head)	54	78	60	42	-	-
BL Increased (cm/calf/day)	0.0543 ^b	0.0704 ^{ab}	0.0872 ^a	0.0900 ^a	0.0034	0.0066
WH Increased (cm/ calf /day)	0.0847 ^b	0.0908 ^{ab}	0.0967 ^{ab}	0.1084 ^a	0.0030	0.1959
HG Increased (cm/ calf /day)	0.0895 ^b	0.1383 ^a	0.1462 ^a	0.1484 ^a	0.0067	0.0005

Note: Different Superscripts in the same row show significant differences (P<0.01). Bwt = body weight
BL = body length, HG = heart girth, WH = wither height

Results showed that supplementation increased calf body measurements as presented in Table 1. Supplementation at 2% live weight or above significantly increased (P<0.01) BL and HG. However, supplementation failed to significantly increase WH. This research indicated better response than previously reported by Toelihere et.al., (1991) who showed increases in body measurements for BL of 0.07 cm/head/day, WH 0.06 cm/head/day and HG 0.11 cm/head/day, but less than that reported by Jelantik (2001), who reported responses for BL of 0.25 cm/head/day, WH 0.22 cm/head/day and HG 0.26 cm/head/day. In conclusion, direct feed supplementation of Bali calves during the dry season significantly increases linear body growth. Research will continue to determine if these calves that received early supplementation will achieve minimum body size and weight for export, and at an earlier age than unsupplemented controls.

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Email: ardinalson@yahoo.com