

Carcass Characteristics of Bali and Ongole Crossbreed Cattle Fed with Sorghum Base

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ABSTRACT

The objective of the research was to evaluate carcass characteristics of Bali and Ongole crossbreed (PO) cattle fed with sorghum base. A total of 12 cattle were used for this research. Treatments were breed (Bali and Ongole crossbreed) and slaughter weight (average slaughter weight group 1/SWG 1 was 282 kg and average slaughter weight group 2/SWG 2 was 322 kg) with 3 cattle for each treatment. Parameters observed were those related to carcass characteristics. Result showed that carcass weight and percentage of Bali and PO cattle were not significantly different for both SWG 1 and SWG 2. Both Bali and PO cattle still were not reach optimum slaughter weight. Measurement of carcass component on half carcass, Bali cattle has higher proportion of lean than PO cattle in SWG 1 ($P < 0,05$), whereas in SWG 2 PO cattle has higher fat trim than Bali Cattle. In addition, measurement on quarter of carcass, Bali cattle has higher meat proportion on forequarter than PO cattle in SWG 1 ($P < 0,05$). While O cattle has higher fat trim proportion than Bali cattle both in SWG 1 and SWG 2 ($P < 0,05$). In conclusion Bali cattle has higher distribution of meat on forequarter carcass than PO, in contrast PO cattle has higher meat distribution on hindquarter carcass.

Key Words: Bali cattle, Ongole crossbreed cattle, Carcass characteristics

INTRODUCTION

Bali and Ongole crossbreed (PO) cattle are native Indonesian cattle with several beneficial characteristics such adaptive to local condition, heat tolerant and more resistance to parasite infestation (Astuti, 2003; Siswanto et al., 2013). Almost 15,1% of local cattle were slaughtered in good condition, around 84,9% were in poor and average condition. This situation led to lower carcass percentage with average was 50,84% (Fakultas Peternakan IPB, 2012). Several studies found that higher carcass percentage was obtained when the local cattle were kept in an intensive system (feedlot) in which average carcass percentage was 51-56% (Santi, 2008; Tonbesi et al., 2009, Wasdiantoro, 2010).

Eastern region of Indonesia is known as a source for local cattle with pasture base as major production system. Feed scarcity during dry season especially for concentrate feed become a major challenge on this system. Consequently cattle performace become lower and the cattle were slaughter in poor condition. On the other hand this region a big potential to improve their local cattle performance due to vast area for cereals crop like sorghum. Several studies showed that cattle fattening fed sorghum based diet can increase daily gain around 0,90-1,54 kg, as sorghum is comparable with corn as cattle feed (Brouk. 2010; Corriher et al., 2010; Jabbari et al., 2011). Evaluate the use of sorghum on local cattle especially Bali and PO cattle performance to carcass characteristics.

MATERIALS AND METHODS

The study was conducted from Mei to September 2013 in Faculty of Animal Science, Bogor Agricultural University. A Total of twelve cattle with initial body weight around 240 to 300 kg At about 1,5 to 4,5 years of age were used in the research. Breed of cattle were Bali and Ongole Crossbreed (PO), 6 heads for each breed.

Cattle were kept on intensive system for 38 to 59 days until they reached slaughter weight on group one at 250 to 300 kg and group two at 300 to 350 kg. Cattle were fed with sorghum silage base-diet (73%) with concentrate (27%) as additional feed.

Cattle were slaughtered at about 280 kg for SWG1 and 322 kg for. Carcass was hanged at tendo achilles. Immediately after slaughter carcass was split on the spine into halves carcass and weighed as hot carcass weight. Carcass was suspended into chilling room 2-5 °C for 10 to 12 hours. Measurement of carcass characteristics was carried out on left carcass. For each carcass, it was split on 12 to 13 ribs into forequarter and hindquarter carcass. Parameters observed were those related to the carcass characteristics such carcass weight, carcass percentage and carcass component composition (lean, bone and fat).

A 2x2 CRD factorial was used as the experimental design. Breed of animal (Bali and PO) and slaughter weight (SWG1 and SWG2) were the two factors involved. First factor was breed (Bali and PO cattle) and second factor was slaughter weight group (SWG 1 was 250 to 300 kg and SWG 2 was 300 to 350 kg). Data obtained were analyzed using Anova (Steel and Torrie, 1980).

RESULT AND DISCUSSION

Carcass Characteristics

Animal productivity can be measured from the average lean yield per animal unit. According to the technical and economical aspects, animal productivity was reflected from carcass weight, carcass percentage, lean yield and quality and saleable carcass cuts (Soeparno 2005; Harmini *et al.*, 2011). Carcass productivity of the Bali and PO cattle were presented on Table 1.

Table 1. Average productivity of Bali and PO carcass fed with sorghum silage base

Parameters	Slaughter weight I (280 kg)		Slaughter weight II (322 kg)	
	Bali	PO	Bali	PO
	mean ± SE	mean ± SE	mean ± SE	mean ± SE
Carcass weight (kg)	135.217±3.248	137.237±4.341	154.731±4.090	166.760±3.330
Carcass percentage (%)	48.330±1.136	49.176±1.518	48.009±1.430	51.678±1.165

Carcass weight and percentage of Bali and PO cattle at average slaughter weight 280 kg and 322 kg were similar, but according to the Table 1 increasing of the slaughter weight tend to increase carcass weight. Increasing carcass weight for Bali and PO cattle were 14,43% and 21,51% respectively. Aberle *et al.* (2001) stated that increasing of the slaughter weight will increased number and area of the bone, muscle and fat tissues, also vital organs and others related tissues.

Similar carcass percentage on Bali and PO cattle at SWG 1 and SWG 2 indicated that the cattle were slaughtered on unoptimal slaughter weight. Leo *et al.* (2012) reported that Bali cattle which slaughtered on 323,83 kg produce carcass percentage around 59,02%. Whereas for PO cattle, Ngadiono (1995) reported that PO cattle which slaughtered on 412,50 kg produce carcass percentage around 52,69%.

Carcass component

Bali cattle had higher lean yield than PO cattle at average slaughter weight 280 kg ($P < 0,05$). Otherwise at average slaughter weight 322 kg, lean yield both cattle breeds were not significantly difference, eventhough lean yield for Bali cattle was higher than PO Table 2). Bali cattle has higher lean yield for forequarter carcass than PO cattle ($P < 0,05$) at average

slaughter weight 280 kg. Ninu (2008) reported that 54,18% from total carcass of Bali cattle was in forequarter, whereas Yurleni (2013) reported that 57% from total carcass of PO cattle was in hindquarter.

Table 2. Average carcass component of Bali and PO cattle fed with sorghum silage base

components (kg)	Cattle breeds			
	Slaughter weight I (280 kg)		Slaughter weight II (322 kg)	
	Bali	PO	Bali	PO
	mean ± SE	mean ± SE	mean ± SE	mean ± SE
Half carcass				
Lean	51,497±0,538 ^A	49,363±0,739 ^B	57,865±0,759	55,810±0,538
Fat trim	1,945±0,306	3,075±0,421	1,989±0,433 ^B	3,645±0,306 ^A
Bone	16,554±0,569	17,350±0,781	18,347±0,803	18,524±0,568
Forequarter				
Lean	27,186±0,554 ^A	24,912±0,762 ^B	31,487±0,783	29,635±0,554
Fat trim	0,806±0,198	1,137±0,273	0,821±0,280	1,535±0,198
Bone	10,262±0,489	10,342±0,671	11,804±0,690	11,158±0,488
Hindquarter				
Lean	24,312±0,593	24,450±0,815	26,378±0,837	26,175±0,593
Fat trim	1,139±0,197 ^B	1,937±0,271 ^A	1,168±0,278 ^B	2,110±0,197 ^A
Bone	6,293±0,231	7,009±0,317	6,543±0,326	7,367±0,231

Different superscript on similar rows were shows significantly difference (P<0,05)

In general, PO cattle produced higher fat trim carcass than Bali cattle and differ significantly (P<0.05) in SWG2 in both half carcass and hindquarter part. Higher fat trim carcass was due to higher fat tissue contained in carcass. Priyanto (1993) reported that at or during fattening phase of *Bos indicus* group (Brahman cattle) has faster growth and development of carcass fat tissue than on *Bos indicus* group (Hereford cattle). Zebu cattle involved *Bos indicus* group have tendency to accumulate higher carcass fat when kept on feedlot with concentrate feed.

CONCLUSION

Bali cattle has higher lean yield in average slaughter weight 280 kg than PO cattle at half carcass portion. Otherwise, at hindquarter portion, PO cattle has higher fat trim than Bali cattle on both average slaughter weight 280 kg and 322 kg. overall, Bali cattle has higher distribution of meat components on forequarter carcass than PO, while PO cattle has higher meat components distribution on hindquarter carcass.

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