

Introduction

Methods that can estimate the physical composition of the carcass or body without damaging the entire carcass are important as they save time, labor and costs.

Objective

This study determined equations to estimate the physical components of the buffalo carcass using biometric measurements performed *in vivo*, carcass traits performed *postmortem*, and the set of both measurements

Material and Methods

Seventy-five non-castrated males of three genetic groups. Ultrasound assessments, weight, hip height measurements, and body condition score were performed every 28 days, and tested as independent variables. The *postmortem* measurements tested as independent variables were carcass length, carcass depth, cold carcass weight, hot carcass weight, and carcass compactness index. The empty body weight also was used in the equations. The percentage of tissues which comprise the carcass was determined by the physical separation. The equations to estimate the physical composition of the carcass were developed using the stepwise regression method and Mallows' Cp criterion and processed by the REG procedure in SAS.

Results

Table 1. Multiple regression equations for predicting the carcass physical composition obtained through data obtained *in vivo* and *postmortem*.

Dependent variables, kg	Intercept	Estimator	Independent variables	RMSE	R ²	Cp
Muscle	16.166	-0.042	EBW	3.448	0.91	4.864
		0.211	CCW			
		49.309	CD			
		0.210	HCW			
		-35.570	HH			
Fat	29.471	0.070	EBW	2.151	0.77	2.568
		-33.716	CL			
		0.285	BFT			
		-11.080	CD			
Bone	-34.261	20.380	CL	1.181	0.87	2.218
		18.356	HH			
		0.011	EBW			

EBW = empty body weight; CCW = cold carcass weight; CD = carcass depth; HCW = hot carcass weight; HH = hip height; CL = carcass length; BFT = backfat thickness; RMSE = root mean square error; R² = coefficient of determination; Cp = Mallows Cp.

Highlights

- ✓ *In vivo* and *postmortem* equations;
- ✓ High coefficients of determination;
- ✓ Small values of Mallows' Cp;
- ✓ Reliability of equations.

Conclusions

In conclusion, the equations obtained from models with both *in vivo* and *postmortem* measurements present high prediction and can be used efficiently in the estimate of the physical components of the water buffalo carcass



Carcasses of water buffaloes finished in feedlot.

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