ASSESMENT of A MODEL FOR PREDICTION of BW of BEEF CATTLE TO DETERMINE THE MOST ACCURATE PREDICTION RANGE

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INTRODUCTION

Prediction of liveweight and meat yield has been the major focus of many studies in the developed countries. Therefore, an evaluation procedure for predicting weights and yields of carcasses becomes of great importance for the beef producers.

INTRODUCTION...

Predictive models, ranging from simplified representations (such as the energy and protein systems for ruminants) to more complex dynamic models have tended to be empirical representations and as such have limited application situations outside those in which the data sets were collected.

The results of the most studies have recognised that the accuracy of estimating body weight from heart girth give more reliable predictions than other body measurments as a useful tool for small scale farmers.

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However, there is still uncertainity about reliability of such prediction models to predict BW of beef cattle. There is a need to know under which weight ranges such models give better predictions.

OBJECTIVE

Therefore, it was aimed to evaluate a regression model based on hear girth (HG) measurments and developed for BW prediction of beef cattle in order to determine the best possible prediction range.

MATERIALS and METHODS

- ***Data set***

  865 Liveweight records of Brown Swiss beef cattle.

  Data were arranged as the weights of animals ranging from 150 to 600 kg and were divided into 8 weight clases at 50 kg intervals.

MATERIALS and METHODS...

Model used

The regression model used (Y=-461+4.9HG) was developed by Bozkurt*. R^2=89.9%

*Bozkurt, Y. (2006) Prediction of Bodyweight from Body Size Measurements in Brown-Swiss Feedlot Cattle Fed under Small-scale Farming Conditions. J. Appl. Anim. Res, 29: 29-32.

RESULTS AND DISCUSSION

Weight range	N		Mean BW (kg)	s.e.
150-199	44	Actual	177	3.87 *
		Predicted	195	
200-249	150	Actual	226	2.43 *
		Predicted	239	
250-299	161	Actual	273	2.38 *
		Predicted	284	
300-349	180	Actual	321	3.29 *
		Predicted	331	
350-399	160	Actual	374	4.28 ns
		Predicted	381	
400-449	109	Actual	422	5.38 ns
		Predicted	429	
450-499	38	Actual	469	11.48 ns
		Predicted	473	
500-600	25	Actual	542	12.79 ns
		Predicted	543	

RESULTS AND DISCUSSION

There were significant ($P < 0.05$) differences in actual and predicted BW's at low weight ranges. However, there were no significant differences ($P > 0.05$) at high weight ranges.

RESULTS AND DISCUSSION

The model generally overpredicted BW values in all weight ranges. Discrepancies were high and significant ($P < 0.05$) at low weight ranges. However, beginning from the range 350-399 kg discrepancies started to decrease as the weight range increased. The most accurate results were obtained from the range 500-600 kg.

CONCLUSION

The results indicated that the model does not provide very close agreement with reality when BWs of cattle were lower than 350 kg while the accuracy of the model improves as the BW increases.

Different feeding and environmental conditions and breed differences should be taken into account in BW prediction by the models developed to use in practice.

THANK YOU FOR YOUR PATIENCE