8th International Workshop on Modelling Nutrient Digestion and Utilisation in Farm Animals

Extended Abstracts

The following one-page abstracts summarise papers presented at the Workshop in addition to those published as peer-reviewed research papers or reviews in the Special Issue of *Animal Production Science* Volume 54, Issues 11–12. Their sequence and organisation into four major topic areas follows the order of presentation at the Workshop. These abstracts have not been independently peer-reviewed for science quality but have been edited for form of presentation and clarity of content.

Evaluation of the Small Ruminant Nutrition System model (SRNS) for goat production in Vietnam

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Introduction

Applied nutrition models that can accurately predict goat performance under different feed intake regimes play a crucial role in developing improved feeding strategies. The primary objective of this study was to evaluate the ability of the SRNS model to predict the dry matter intake (DMI), average daily gain (ADG), nutrient digestibility, and faecal output characteristics of Vietnamese goats.

Methods

The SRNS version 1.9.4468 (http://nutritionmodels.tamu.edu/srns.html) was used to simulate animal intake and performance of two local Vietnamese goat breeds for four feeding experiments.

Results

The model under-predicted DMI (kg/d) for most treatments (R^2 = 0.70) and under-predicted ADG (g/d) for all treatments (R^2 = 0.69) (Table 1). Nutrient digestibility and faecal outputs were generally under-predicted. Coefficients of determination for DM (0.94) and CP digestibility (0.93) were high.

Table 1. Coefficient of determination (R^2), root mean square error (RMSE), slope (b), and y-intercept (a) for regression of observed and model-predicted outputs (four experiments)

Parameter	R^2	RMSE	Slope			Intercept		
			b	SD_b	Prob. b = 1	a	SD_a	Prob. a = 0
Growing period								
Dry matter intake	0.70	0.10	1.48	0.29	0.12	-0.09	0.11	0.44
Average daily gain	0.69	29.9	0.81	0.21	0.39	46.86	13.3	0.01
Digestibility period								
Dry matter digestibility	0.94	5.06	1.31	0.24	0.23	-12.18	15.4	0.45
Digestible organic matter	0.47	6.64	1.01	0.34	0.97	5.87	21.9	0.79
Digestible crude protein	0.93	6.45	1.15	0.10	0.17	0.03	5.84	0.99
Faecal output								
Dry matter	0.61	25.3	0.76	0.19	0.25	7.58	30.6	0.80
Organic matter	0.60	19.7	0.74	0.19	0.21	12.11	24.1	0.63
Crude protein	0.63	3.67	0.76	0.18	0.22	0.84	3.60	0.82

Conclusions

Our evaluation indicated that the SRNS model can predict the DMI and ADG of Vietnamese goats when nutritive values of the feeds are known. The regression equations developed in this study could be used to adjust the outputs of the SRNS model to predict the results of feeding systems.

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