animals

MDPI

Supplementary Materials

Use of Biometric Images to Predict Body Weight and Hot Carcass Weight of Nellore Cattle

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Table S1. Models developed for Artificial Neural Networks, Partial Least Squares and Least absolute shrinkage and selection operator for body weight prediction.

Item	Experimental sets [1]			
	Set 1	Set 2	Set 3	Set 4
ANN				
1[a]Neural Layers Unit	28	28	28	28
2° Type of Neural Layers	RectifierWithDropout	RectifierWithDropout	RectifierWithDropout	RectifierWithDropout
	100	100	100	100
Epoch	20	20	20	20
L1 [2]	0.000024	0.000024	0.000024	0.000024
L2 [3]	0.000019	0.000019	0.000019	0.000019
Input dropout ratio	0	0	0	0
hidden dropout reason	0	0	0	0
PLS [4]				
Number of Factors	8	5	8	13
LASSO				
Lambda	0.70	0.32	0.30	0.13

[1] Experimental sets: Set 1 = Experimental set composed of experiment 1, 2 and 3 for training and experiment 4 for validation of the predictive model; Set 2= Experimental set composed of experiment 1, 2 and 4 for training and experiment 3 for validation of the predictive model; Set 3 = Experimental set composed of experiment 1, 3 and 4 for training and experiment 2 for validation of the predictive model; Set 4 = Experimental set composed of experiment 2, 3 and 4 for training and experiment 1 for validation of the predictive model.

[2] L1 = Lasso Regularization.

[3] L2 = Ridge regularization.

[4] NIPALS method: Nonlinear interactive partial range algorithm used to calculate PLS regression components.

Table S2. Models developed for Artificial Neural Networks, Partial Least Squares and Least absolute shrinkage and selection operator to predict hot carcass weight

Item	Experiment set [1]			
	Set 1	Set 2	Set 3	Set 4
ANN				
1[a]Neural Layers Unit	32	32	32	32
2° Type of Neural Layers	RectifierWithDropout	RectifierWithDropout	RectifierWithDropout	RectifierWithDropout
	100	100	100	100
Epoch	20	20	20	20
L1 [2]	0.000024	0.000024	0.000024	0.000024
L2 [3]	0.000019	0.000019	0.000019	0.000019
Input dropout ratio	0	0	0	0
Hidden dropout reason	0	0	0	0
PLS [4]				
Number of Factors	1	5	4	13
LASSO				
Lambda	0.57	1.80	0.16	0.18

[1]Experimental sets: Set 1 = Experimental set composed of experiment 1, 2 and 3 for training and experiment 4 for validation of the predictive model; Set 2 = Experimental set composed of experiment 1, 2 and 4 for training and experiment 3 for validation of the predictive model; Set 3 = Experimental set composed of experiment 1, 3 and 4 for training and experiment 2 for validation of the predictive model; Set 4 = Experimental set composed of experiment 2, 3 and 4 for training and experiment 1 for validation of the predictive model.
[2]L1 = Lasso Regularization.
[3]L2 = Ridge regularization.
[4]NIPALS method: Nonlinear interactive partial range algorithm used to calculate PLS regression components.