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INTRODUCTION

Faecal visible NIR spectroscopy can be used for predicting organic matter digestibility (OMD) and/or daily intake (DI) of ruminants which are traits difficult to measure in practice. However, necessary data could not be obtained in standardized conditions between experiments, which could be associated to a lack of precision of visible/near infrared (VIS/NIR) models.

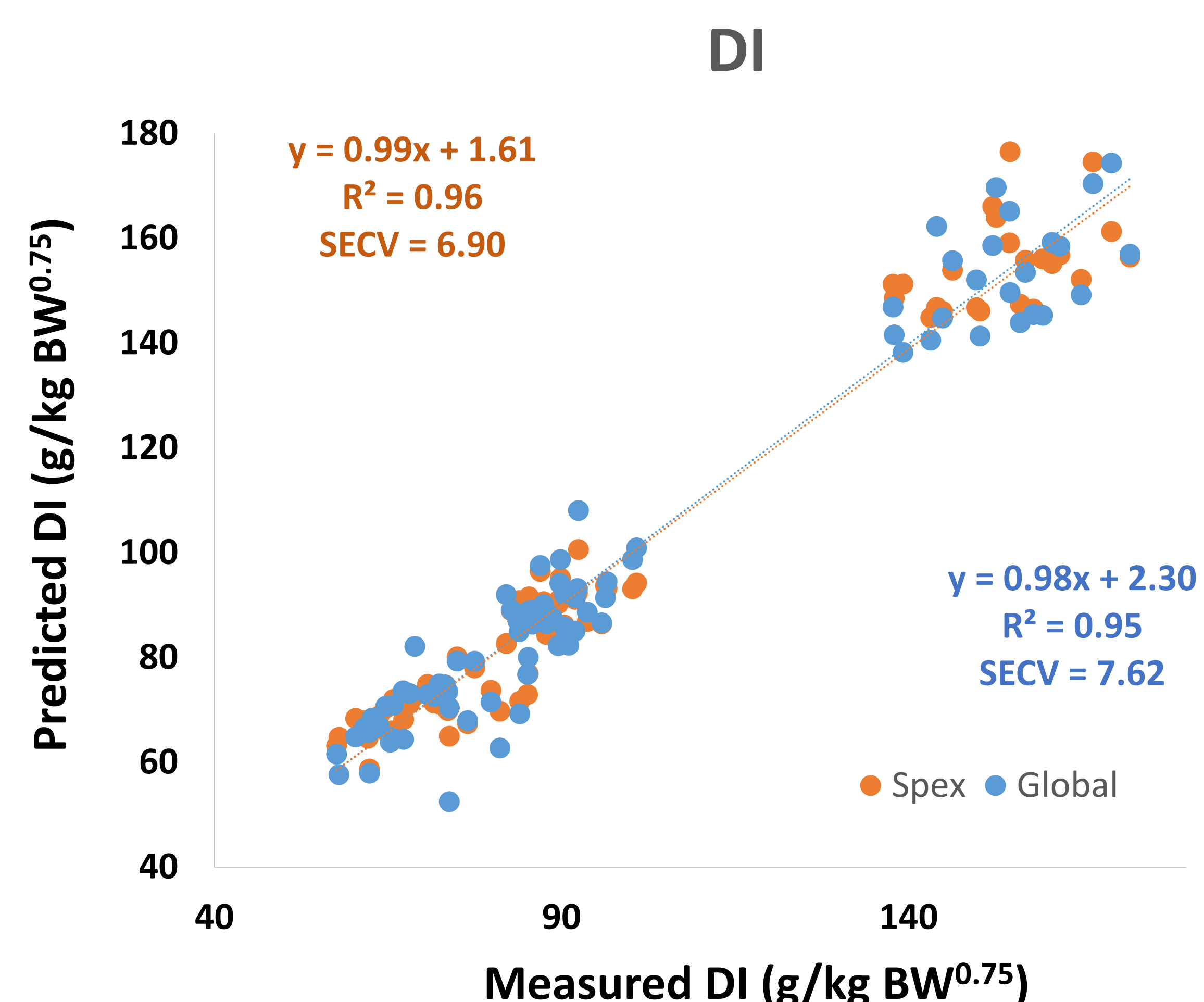
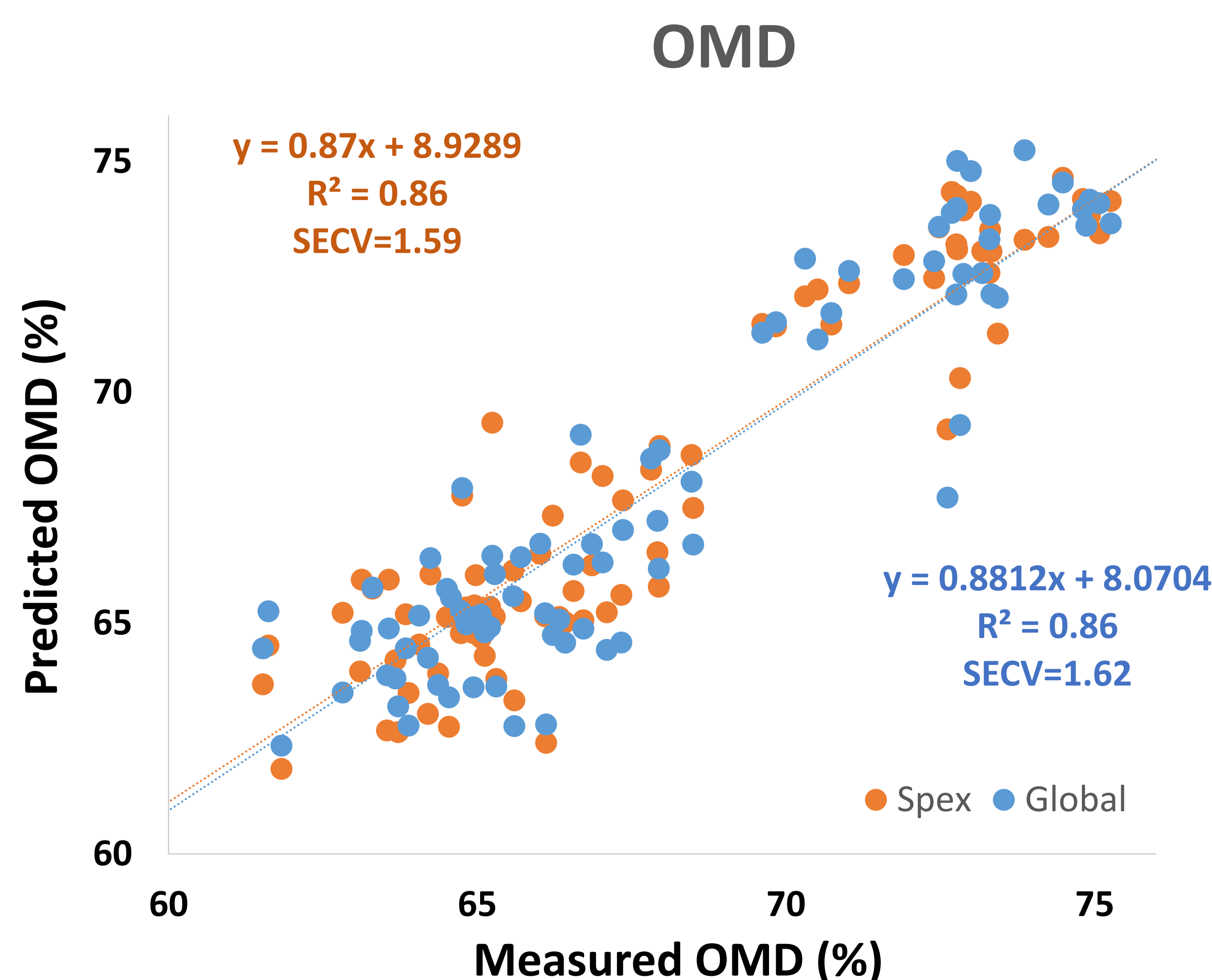
OBJECTIVE

To compare two calibration strategies for predicting OMD and DI of cow diets from VIS/NIR spectra of faeces.

MATERIAL and METHODS

- Individual OMD and daily DI were measured on 88 cattle beef and dairy cows in 3 different experiments:
- VIS/NIR scanning and calibration procedures:
 - ✓ The ground samples were scanned using a Foss-NIRSystem 6500 monochromator with Autocup sampler (400-2500 nm, steps 2 nm).
 - ✓ Specific experiment (Spex) and a global calibration strategies were used coupled to a cross-validation procedure.

RESULTS



Linear regression plot of measured versus predicted values for OMD or DI values using Specific experiment calibration model and a global calibration

Descriptive statistics for OMD (percentage) used in the database and statistical parameters using two calibration strategies

	Spex	Global	P value
Means	68.13	68.04	
Sd	4.03	4.12	
Min	61.84	62.34	
Max	75.26	75.24	
bias	0.08	0.02	ns
SECV(C)	1.59	1.63	ns

Sd: standard deviation. Min: Minimum value. Max: Maximum value.
SECV(C): Standard error of cross validation corrected by bias

Descriptive statistics for DI (g/kg BW^{0.75}) used in the database and statistical parameters using two calibration strategies

	Spex	Global	P value
Means	99.72	99.21	
Sd	35.39	35.12	
Min	58.69	52.44	
Max	176.5	174.33	
bias	0.34	0.18	ns
SECV(C)	6.93	7.65	ns

Sd: standard deviation. Min: Minimum value. Max: Maximum value.
SECV(C): Standard error of cross validation corrected by bias

CONCLUSIONS

Mixing samples from experiments conducted in very different conditions does not degrade the precision of the obtained VIS/NIRS models to predict OMD and DI in cattle.