Parameterisation of a dynamic rumen model to simulate the voluntary intake of Latxa sheep during lactation

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Framework: estimation of voluntary feed intake (VFI) is a key step to predict animal performance in a simulation model

Objective: to validate a dynamic rumen simulation model in order to predict VFI for dairy sheep with complex diets

Material and Methods

SOURCES FOR VALIDATION

☑ **Bibliographic references**: 24 studies providing one single tropical roughage fed *ad libitum* to sheep

Forage Inputs for the model and observed VFI were available at Nsahlai & Apaloo (2007)

Results are aggregated as one study (B)

VFI of forage was compared with model output

☑ **Experimental data:** 4 studies with Latxa sheep fed a fixed amount of Lucerne Hay (0.6 kg DM), Commercial Concentrate (0.7 kg DM) and Grass Silage (*ad libitum)* during lactation

Forages were characterized by in vitro degradation, gas production measure and neutro-detergent extraction

- 3 sets of 12 ewes of high, medium and low milk yield were monitored during peak of lactation (L11, L12, L13, milk production = 2.14 l., 1.64 l. and 1.43 l. respectively)
- 1 set of 12 ewes was monitored during the middle of lactation period (L2, peak milk production = 1.4 l.)

VFI of grass silage was compared with model output

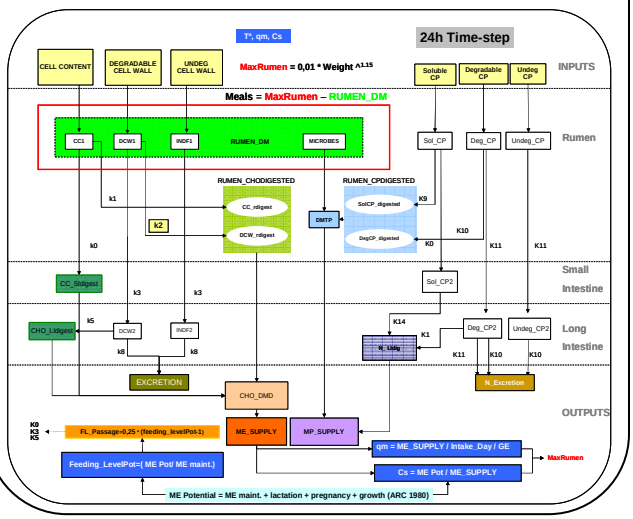
☑ **Comparison of models:** Predicted VFI of high quality Lucerne Hay for sheep at different physiological states and live weight has been compared with predictions of INRA and SNRS (Cannas et al. 2004).

THE RUMEN SIMULATION MODEL

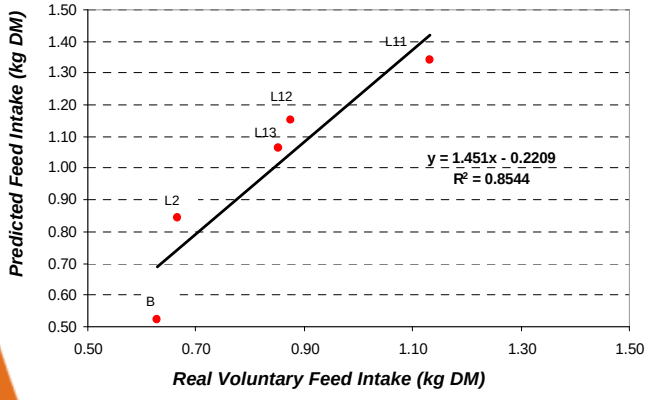
Modifications on the model of Herrero (1997) and Silveira (2002) have been made and implemented in Visual Basic:

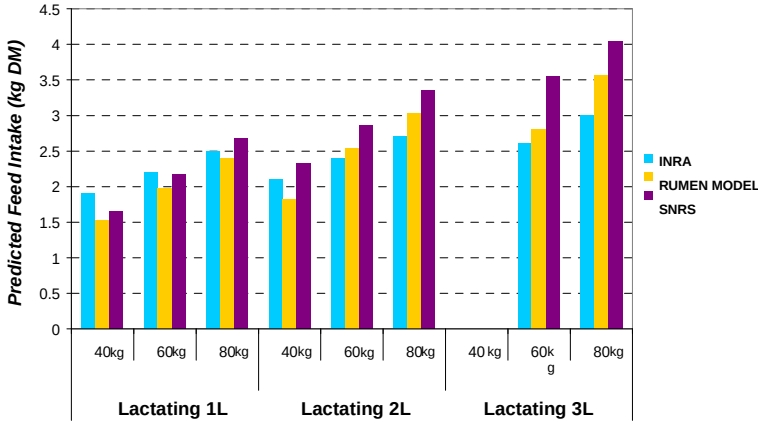
♣ Passage Rates are modified by the Potential Feeding Level in order to simulate different milk yield potential

♣ A limited amount of high quality forage and concentrate may be set, then a second forage can be fed *ad libitum*



Results and conclusions





▶ The model tends to underestimate VFI of low quality forages (B) and overestimate VFI of complex diets with high energy and protein content (L11, L12, L13, L2)

▶ When predicting the VFI of Lucerne Hay in sheep with different milk productive potential and live weights the model's predictions are within the range of the estimations achieved with other models

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