

# Relatório de pós-doutorado

## Projeto Ecossistemas Sustentáveis

**Bolsista:** Claudio Antonio Pozo

**Supervisor:** Gilberto Vilmar Kozloski

**Instituição:** Programa de Pós-Graduação em Zootecnia/ UFSM

**Bolsa:** CAPES-PRINT

**Vigência:** 01/04/2019 a 31/03/2020

### Atividades desenvolvidas

#### I. Experimentos conduzidos:

1. Determinação dos teores de marcadores internos em alimentos e fezes de ovinos e bovinos obtidas em experimentos de digestibilidade. Objetivo: Avaliar a recuperação fecal de marcadores internos (Artigo em elaboração).
2. Determinação dos teores de marcadores internos em alimentos, conteúdo ruminal e fezes de um experimento com ovinos em pastejo. Objetivo: calcular a taxa de passagem do alimento.
3. Determinação de parâmetros de fermentação *in vitro* da fração insolúvel em água de forragens. Objetivo: obter valores de taxa de produção de gás *in vitro* para ser incorporada num modelo de predição de consumo em ovinos (Anexo 8).

#### II. Redação de artigos científicos na área de nutrição de ruminantes:

1. *Impact of a tannin extract on digestibility and net flux of metabolites across splanchnic tissues of sheep*. Publicado na revista Animal Feed Science and Technology. (Anexo 1).
2. *Impact of a tannin extract on animal performance and nitrogen excretion of dairy cows grazing a tropical pasture*. Publicado na revista Animal Production Science (Anexo 2).
3. *In vitro fermentation of diets containing sweet potato flour as a substitute for corn in diets for ruminants*. Aceito para publicação na revista Ciência Rural (Anexo 3).
4. *Effect of using Acacia mearnsii tannin extract as a feed additive on nutritional variables and productive performance in dairy cows grazing a temperate pasture*. Aceito para publicação na revista Animal Science Journal (Anexo 4).

5. ***Acacia mearnsii tannin extract as a feed additive: impact on feed intake, digestibility and nitrogen excretion by sheep fed a tropical grass-based diet.*** Submetido para a revista *Ciência Rural* e se encontra em revisão (Anexo 5).
6. ***Dietary tannin and afternoon grazing were effective to reduce the excretion of urinary nitrogen without affecting productive performance in middle-lactation dairy cows fed total mixed ration and pasture.*** Em fase final de elaboração e será submetido à revista *Journal of Dairy Science* (Anexo 6).
7. ***Production and uptake of ammonia and its relationship with gas and microbial biomass production in an in vitro system.*** Em elaboração e será submetido à revista *Animal Feed Science and Technology*.
8. ***Evaluation of faecal recovery of internal indigestible markers in digestion experiments with sheep and cattle.*** Em elaboração e será submetido à revista *Animal*.

III. Redação de resumos e apresentações em eventos científicos

1. ***Impact of buffer turnover rate on outflow of N compounds in a semi-continuous culture fermenter (RUSITEC).*** Resumo simple apresentado em: 9th Workshop on Modelling Nutrient Digestion (MODNUT), Ubatuba, SP, Brasil (Anexo 7).
2. ***Predicting forage intake by sheep through the Pampa Corte model.*** Resumo simple aceito (Anexo 8) para apresentação em: The Joint International Grassland and International Rangeland Congress, Nairobi, Kenya. Resumo expandido em elaboração.

IV. Auxilio aos estudantes de graduação e pós-graduação do Laboratório de Nutrição de Ruminantes na redação de resumos para eventos científicos e na condução e análise de dados de experimentos *in vitro*.

V. Participação de seminários em nutrição de ruminantes do grupo de alunos do professor Gilberto Vilmar Kozloski.

VI. Participação na organização do evento científico ``3rd Rural Challenges in Grassland Meeting, Porto Alegre, RS, Brazil``.

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)**Animal Feed Science and Technology**journal homepage: [www.elsevier.com/locate/anifeedsci](http://www.elsevier.com/locate/anifeedsci)**Impact of a tannin extract on digestibility and net flux of metabolites across splanchnic tissues of sheep**

Tiago Orlandi, Simone Stefanello, Mariana P. Mezzomo, Claudio A. Pozo, Gilberto V. Kozloski\*

Departamento de Zootecnia, Universidade Federal de Santa Maria, Santa Maria, RS, 97105-900, Brazil

## ARTICLE INFO

**Keywords:**

*Acacia mearnsii*  
Ammonia  
Gluconeogenesis  
Liver  
Sheep  
Ureagenesis

## ABSTRACT

This study was conducted to quantify the impact of the dietary inclusion of *Acacia mearnsii* bark extract (TA), a tannin extract, on total tract digestibility and on ammonia, urea and glucose splanchnic net flux in sheep. The trial was conducted with five Texel male sheep ( $48 \pm 3.2$  kg body weight (BW)) surgically implanted with chronic indwelling catheters into one mesenteric, portal and hepatic veins, in two 21-day periods, in a cross-over design. Diet was oat/ryegrass hay, offered *ad libitum*, plus concentrate offered three times per day at a rate of 14 g/kg BW. The concentrate, composed of soybean meal, cracked corn and wheat bran, included (Tannin) or not (Control) 20 g/kg dry matter (DM) of TA. Plasma flow and net flux through portal-drained viscera (PDV), liver and total splanchnic tissues (ST) were measured using four hourly samples, from 14:00 to 17:00, after the 12:00 meal. Total TA concentration in diet of TA treatment averaged 7.7 g/kg DM. The organic matter (OM) intake and digestibility were not affected by TA. The nitrogen (N) intake and fecal excretion, the estimated rumen microbial N flow to the small intestine and the efficiency of microbial protein synthesis (EMPS) were not affected whereas the digestibility of N compounds and the urinary excretion of urea-N were lower ( $P < 0.05$ ) in TA treatment. There was no significant effect of TA on the net flux of ammonia, urea-N or glucose across PDV, liver and total ST. In conclusion, the dietary inclusion of tannin extract from *Acacia mearnsii* at a rate of 7.7 g/kg DM decreased the urinary excretion of urea with, however, no impact on ammonia, urea or glucose net flux across ST.

## Anexo 2.

CSIRO PUBLISHING

Animal Production Science

<https://doi.org/10.1071/AN18726>

# Impact of a tannin extract on animal performance and nitrogen excretion of dairy cows grazing a tropical pasture

T. Orlandi<sup>A</sup>, C. A. Pozo<sup>A</sup>, J. Schiavo<sup>B</sup>, L. Oliveira<sup>B</sup> and G. V. Kozloski<sup>A,C</sup> 

<sup>A</sup>Departamento de Zootecnia, Universidade Federal de Santa Maria, Santa Maria, RS, 97105-900, Brazil.

<sup>B</sup>Departamento de Ciências Agrárias, Universidade do Noroeste do Estado do Rio Grande do Sul, Ijuí, RS, 98700-000, Brazil.

<sup>C</sup>Corresponding author. Email: gilberto.kozloski@ufsm.br

### Abstract

**Context.** Tannin extracts have been investigated as natural feed additives with the potential to decrease the enteric emission of methane and urinary N and to improve the productive performance of ruminants. However, the impact of this additive in dairy cattle grazing tropical grass pastures has not been extensively evaluated.

**Aims.** To evaluate the impact of the *Acacia mearnsii* bark extract (TA) on productive and nutritional variables in dairy cows grazing a *Cynodon dactylon* pasture and receiving supplementary corn silage and concentrate.

**Methods.** Fourteen multiparous Holstein dairy cows were assigned in a randomised block design to either of the following two treatments: concentrate without TA (control) or with 10 g of TA/kg dry matter (DM). The concentrate and corn silage accounted for ~0.30 and 0.30 of total DM intake respectively.

**Key results.** The dietary concentration of TA was 2.9 g/kg DM and it did not affect nutrients intake, milk production and composition, rumen microbial protein synthesis, plasma urea concentration or faecal N excretion. Total N and urea N excreted in urine were higher, whereas total N excreted in manure tended to be higher in TA treatment.

**Conclusions.** No productive advantage was obtained by including TA in the diet of dairy cows grazing *Cynodon dactylon* pasture. Instead, it increased the excretion of labile urinary N.

**Implications.** The effect of the use of TA as a feed additive for cows fed tropical grass-based diets is negative from the environmental point of view.

**Additional keywords:** *Acacia mearnsii*, *Cynodon dactylon*, excretions, milk yield, nitrogen utilisation.

Received 23 November 2018, accepted 2 December 2019, published online 3 March 2020

### Anexo 3.

Ciência Rural



#### **In vitro fermentation of diets containing sweet potato flour as a substitute for corn in diets for ruminants**

Journal:	<i>Ciência Rural</i>
Manuscript ID	CR-2018-1055.R3
Manuscript Type:	Note
Keyword:	fermentation, starch, ruminant nutrition, tubers

SCHOLARONE™  
Manuscripts

#### ***In vitro* fermentation of diets containing sweet potato flour as a substitute for corn in diets for ruminants**

#### **Fermentação *in vitro* de dietas contendo farinha de batata-doce como substituto do milho em dietas para ruminantes**

**Claudia Faccio Demarco<sup>I</sup>, Fabian Manuel Guerrero Paredes<sup>I</sup>, Claudio Antonio Pozo<sup>II</sup>, Marilisa Mibach<sup>I</sup>, Gilberto Vilmar Kozloski<sup>II</sup>, Lisandre de Oliveira<sup>III</sup>, Eduardo Schmitt<sup>I</sup>, Viviane Rohrig Rabassa<sup>I</sup>, Francisco Augusto Burkert Del Pino<sup>I</sup>, Marcio Nunes Corrêa<sup>I</sup>, Cassio Cassal Brauner<sup>I\*</sup>**

- NOTA -

#### **RESUMO**

Com a intensificação dos sistemas de produção e o aumento das exigências alimentares das vacas leiteiras criou-se a necessidade de diversificação nas opções de alimentos, focando em alternativas mais eficientes, modernas e sustentáveis. Poucas pesquisas foram realizadas avaliando a inclusão da farinha de batata-doce como fonte de energia em substituição ao milho para ruminantes. O objetivo deste trabalho foi avaliar a produção de gás *in vitro* da farinha de batata-doce (SPF) em substituição ao milho moído em diferentes níveis. Para a produção de gás *in vitro*, foram realizados quatro

tratamentos, com substituição de milho por farinha de batata-doce a 0, 33, 66 e 100%, em uma dieta com silagem de milho, farelo de soja e milho moído. As incubações foram conduzidas em frascos selados contendo 50 ml do inóculo preparado utilizando o fluido ruminal, solução tampão e 0,5 g de cada tratamento. A produção de gás acumulada foi maior na substituição do milho pela SPF em 100% (224 e 231,9 ml/g MSi para as substituições 0 e 100%). A taxa de degradação e o lag time apresentaram diferença estatística entre os níveis. A taxa de degradação foi 7,10, 7,59, 8,08 e 8,59%/hora nas substituições 0, 33, 66 e 100%, respectivamente. Houve também diferença no lag time, em que as dietas com maior inclusão de SPF tiveram tempo de colonização bacteriana menor. Em conclusão, a farinha de batata-doce produziu mais gás e é degradada mais rapidamente que o milho.

**Palavras-chave:** Fermentação, amido, nutrição de ruminantes, tubérculos.

## Anexo 4.



### Acacia mearnsii tannin extract as a feed additive: impact on nutritional variables and productive performance in dairy cows grazing a temperate pasture

Journal:	Animal Science Journal
Manuscript ID:	ASJ-2019-0452.R4
Wiley - Manuscript type:	Original Article
Date Submitted by the Author:	10-Mar-2020
Complete List of Authors:	Orlandi, Tiago; Universidade Federal de Santa Maria, Zootecnia Pozo, Claudio; Universidade Federal de Santa Maria, Zootecnia Schiavo, Jordana; Universidade Regional do Noroeste do Estado do Rio Grande do Sul Oliveira, Lisandre; Universidade Regional do Noroeste do Estado do Rio Grande do Sul Kozloski, Gilberto; Universidade Federal de Santa Maria, Zootecnia
Keywords:	milk production, nitrogen excretion, dairy cows, tannins, ryegrass
Abstract:	This study was carried out to evaluate the impact of including <i>Acacia mearnsii</i> tannin extract (TA) as a feed additive on nutrition and productive performance of dairy cows grazing a high-quality temperate pasture and receiving supplementation with a concentrate feedstuff. Fourteen multiparous Holstein cows were assigned to either treatment: concentrate without or with 20 g TA/kg dry matter (DM). Concentrate intake accounted for 32% of the total DM intake. Tannin addition increased the herbage DM intake by 22% ( $P < 0.05$ ). There was no effect of TA inclusion on milk yield, milk composition, milk nitrogen (N) excretion, milk and plasma urea-N concentration, urinary excretion of total N, urea-N and purine derivatives. However, TA inclusion increased the N intake and retention, total N excretion in manure, fecal N to urine N ratio and decreased the dietary N efficiency for milk production and the percentage of ingested N excreted in urine ( $P < 0.05$ ). In conclusion, supplementing dairy cows grazing a high-quality temperate pasture with a concentrate containing 20 g TA/kg DM showed the potential of decreasing the proportion of ingested N excreted in urine without affecting the productive performance.

SCHOLARONE™  
Manuscripts

*Acacia mearnsii* tannin extract as a feed additive: impact on nutritional variables and productive performance in dairy cows grazing a temperate pasture

Tiago ORLANDI,<sup>1</sup> Claudio A. POZO,<sup>1</sup> Jordana SCHIAVO,<sup>2</sup> Lisandre OLIVEIRA,<sup>2</sup> and Gilberto V. KOZLOSKI<sup>1,\*</sup>

<sup>1</sup>*Departamento de Zootecnia, Universidade Federal de Santa Maria, Santa Maria, RS, 97105-900, Brazil;*

<sup>2</sup>*Departamento de Ciências Agrárias, Universidade do Noroeste do Estado do Rio Grande do Sul, Ijuí, RS, 98700-000, Brazil*

Running Head: TANNINS FOR GRAZING DAIRY COWS

Correspondence: Gilberto V. Kozloski, Departamento de Zootecnia, Universidade Federal de Santa Maria, Santa Maria, RS, 97105-900, Brazil.

Phone: +55-55-3220-8355; Email: [gilberto.kozloski@ufsm.br](mailto:gilberto.kozloski@ufsm.br)

## ABSTRACT

This study was carried out to evaluate the impact of including *Acacia mearnsii* tannin extract (TA) as a feed additive on nutrition and productive performance of dairy cows grazing a high-quality temperate pasture and receiving supplementation with a concentrate feedstuff. Fourteen multiparous Holstein cows were assigned to either treatment: concentrate without or with 20 g TA/kg dry matter (DM). Concentrate intake accounted for 32% of the total DM intake. Tannin addition increased the herbage DM intake by 22% ( $P < 0.05$ ). There was no effect of TA inclusion on milk yield, milk composition, milk nitrogen (N) excretion, milk and plasma urea-N concentration, urinary excretion of total N, urea-N and purine derivatives. However, TA inclusion increased the N intake and retention, total N excretion in manure, fecal N to urine N ratio and decreased the dietary N efficiency for milk production and the percentage of ingested N excreted in urine ( $P < 0.05$ ). In conclusion, supplementing dairy cows grazing a high-quality temperate pasture with a concentrate containing 20 g TA/kg DM showed the potential of decreasing the proportion of ingested N excreted in urine without affecting the productive performance.

**Key words:** dairy cows, milk production, N utilization, ryegrass, tannins



**Acacia mearnsii tannin extract as a feed additive: impact on feed intake, digestibility and nitrogen excretion by sheep fed a tropical grass-based diet**

Journal:	<i>Ciência Rural</i>
Manuscript ID	CR-2020-0095
Manuscript Type:	Original Article
Keyword:	Cynodon dactylon, rumen microbial protein synthesis, tannins

SCHOLARONE™  
Manuscripts

**Acacia mearnsii tannin extract as a feed additive: impact on feed intake, digestibility and nitrogen excretion by sheep fed a tropical grass-based diet**

**Extrato tanífero de Acacia mearnsii como aditivo alimentar: impacto sobre o consumo, digestibilidade e excreção de nitrogênio em ovinos alimentados com uma dieta a base de gramínea tropical**

**(Original Article)**

**Tiago Orlandi, Claudio Antonio Pozo, Mariana Patrícia Mezzomo, Gilberto Vilmar Kozloski\***

ABSTRACT

*The aim of this study was to evaluate the effect of the dietary inclusion of *Acacia mearnsii* tannin extract (TA) on intake, digestibility and nitrogen (N) retention by sheep given a tropical grass-based diet. The trial was conducted with six castrated male sheep in a cross-over design in two 21-days experimental periods. The sheep were housed in metabolic cages and offered Tifton 85 hay (*Cynodon dactylon*) ad libitum plus concentrate at a rate of 12 g of dry matter (DM)/kg body weight (BW). The treatments were concentrate without (Control) or with 10 g TA/kg DM (Tannin). The concentration of TA in the diet was 3.8 g/kg DM and did not affect the nutrient intake or apparent digestibility. The TA decreased the true digestibility of n compounds ( $P=0.009$ ) whereas it did not impact the N retention, microbial N flow to the small intestine or the efficiency of rumen microbial protein synthesis. In conclusion, a low dietary concentration of TA did not impact the nutrients supply and N use by sheep fed a tropical grass-based diet.*

**Key words:** *Acacia mearnsii*, *Cynodon dactylon*, digestion, fiber, N utilization.

Anexo 6.

**Dietary tannin and afternoon grazing were effective to reduce the excretion of urinary nitrogen without affecting productive performance in middle-lactation dairy cows fed total mixed ration and pasture.**

C. A. Pozo, \* G. V. Kozloski, \* M. Cuffia, † J. L. Repetto, ‡ and C. Cajarville ‡<sup>1</sup>

\* Departamento de Zootecnia, Universidade Federal de Santa Maria, Santa Maria, RS, 97105-900, Brazil.

† Departamento de Producción Animal, Facultad de Ciencias Agrarias, Universidad Nacional del Litoral, Esperanza, 3080, Argentina.

‡ Instituto de Producción Animal, Facultad de Veterinaria, Universidad de la República, San José, 80100, Uruguay.

<sup>1</sup>Corresponding author: ccajarville@fvet.edu.uy

## **ABSTRACT**

This study was conducted to evaluate whether the dietary inclusion of *Acacia mearnsii* tannin extract (TA) or the grazing schedule would impact the intake, digestion, nitrogen (N) partitioning and productive performance of dairy cows fed a diet combining pasture with total mixed ration (TMR). We hypothesized that both strategies could reduce the concentration of ammonia in the rumen and increase protein supply into the small intestine, what should be reflected in improved productive performance and reduced excretion of urinary N in dairy cows. Nine Holstein cows were used in a triplicated 3 × 3 Latin square experiment, conducted through three experimental periods of 22 d. The three treatments consisted of: morning grazing and afternoon TMR without TA (AM),

morning grazing and afternoon TMR added with 15.0 g TA/kg of dry matter (DM) (AMt) and morning TMR without TA and afternoon grazing (PM). Treatments did not affect total DM intake, but PM tended to increase the proportion of pasture in the diet. The proportion of cows eating, ruminating or doing other activities through 16 h-observations was not affected by the treatments, however AM achieved high dry matter intake rate (DMIR) of TMR than PM. Also, AMt and PM increased the proportion of time spent eating TMR in 2 h relative to start of feeding. At grazing, the DMIR of pasture was similar for all treatments. In addition, cows in AM and AMt displayed a similar behavior pattern and showed two peaks of grazing, while the proportion of cows grazing in PM seems to be more stable than AM and AMt. With the exception of PM which reduced the digestibility of DM and CP, treatments did not affect neither rumen fermentation (pH, ammonia-N, sugars, volatile fatty acids), nor microbial protein synthesis, nutrient digestibility or N excretion in milk and feces. However, both tannin addition and afternoon grazing decreased the total N excreted in urine by on average 8 % compared with AM. The milk yield and composition were similar for all treatments, although AMt tended to decrease the percentage of protein and casein in the milk. The fatty acids (FA) profile in milk fat was in general not affected by treatments. In conclusion, including 8.9 g TA/kg diet DM or changing the grazing session from the morning to the afternoon period of the day were effective strategies to decrease the excretion of urinary N without impacting on productive performance of dairy cows fed TMR combined with ryegrass pasture.

**Key Words:** *Acacia mearnsii*, ammonia, milk fatty acid, ruminal fermentation, ryegrass, carbohydrate

## Anexo 7.

### Impact of buffer turnover rate on outflow of N compounds in a semi-continuous culture fermenter (RUSITEC)

C A Pozo<sup>1</sup>, M L Moraes<sup>1</sup>, J Dayuto<sup>2</sup>, C Cajarville<sup>2</sup>, G V Kozloski<sup>1</sup>

<sup>1</sup>Universidade Federal de Santa Maria, Santa Maria, RS, Brazil, <sup>2</sup>Universidad de la República, San José, Uruguay  
claudioapozo@gmail.com

**Application** Models to estimate ruminal protein degradation.

**Introduction** The degradation rate (kd) is a key parameter for estimating the rumen degradable protein (RDP) fraction of feedstuffs, as by using the equation:  $A + B(kd/kd+kp)$ , where A and B are the soluble and insoluble protein fractions, respectively, and kp is the passage rate from rumen (NRC, 2001). The values of Kd reported in most nutritional systems were conventionally estimated through the *in situ* technique (Orskov and McDonald, 1979). This method, however, is based on the determination of disappearance of N compounds from bags, which may occur by the leakage from sample through the bag pores, not necessarily implying degradation by ruminal bacteria. This leakage of sample can involve in an overestimation of the RDP fraction of the crude protein (Bach et al., 2008), which could be exacerbated by an increased passage rate (kp). Thus, we aimed to evaluate the effect of the liquid fraction kp on N compounds profile outflow in semi-continuous culture fermenters.

**Materials and methods** Five semi-continuous culture fermenters were used in an incomplete 3 x 3 Latin square design. The three runs trials were carried out on 9 days each, with 4 days of adaptation and 5 days of sample collection. Each fermenter received daily 10g of the diet in nylon bags with porosity of 50µm. The incubated diet was composed by corn silage (0.60), corn grain (0.21) and soybean meal (0.19). The liquid effluent was removed daily and sampled for N, α-amino-N, peptide-N and ammonia-N analysis. Statistical analysis was carried out using the MIXED procedure of SAS, and linear effects of treatments were analyzed by regression.

**Results** Increasing the passage rate of the liquid fraction did not affect the N degradation or ammonia-N flow, however, increased linearly the peptide-N flow, the total N flow and the total N flow to disappeared N ratio, and decreased linearly the α-amino-N flow.

Table 1. Effect of buffer infusion rate on outflow of N compounds in a RUSITEC system.

	Kp (%/h)			SEM <sup>1</sup>	p-value <sup>2</sup>
	3	5	7		
Incubated N (mg)	245	245	245	0.82	ns
N degradation (%)	53.5	54.6	53.7	1.16	ns
N flow (mg/d)					
Peptide-N	22.9	48.3	56.7	5.14	<0.01
α-amino-N	1.98	1.39	1.29	0.202	0.01
Ammonia-N	15.4	12.0	13.8	1.65	ns
Total N (TN)	40.3	61.7	71.7	4.93	<0.01
TN/disappeared N	0.36	0.55	0.63	0.050	<0.01

<sup>1</sup>Standart error of the mean; n= 5 per treatment. <sup>2</sup>Probability of treatment effect by linear regression analysis.

**Conclusion** The outflow of soluble peptides, as proportion of the N which disappeared from sample, increased linearly at increased buffer infusion rate in the semi-continuous fermenter. This result indicate that the *in situ* technique overestimate the degradable and underestimate the undegradable protein fraction of feedstuffs.

**Acknowledgements** The authors thank the CAPES (Brazil) for scholarship support.

#### References

- Bach A, Ruiz Moreno M, Thrune M, and Stern M D. 2008. Journal of Animal Science. 86, 1364-1371.  
National Research Council - NRC 2001. Nutrients requirements of dairy cattle, 7 ed. Washington, DC: National Academy Press, 381p.  
Orskov E R, and McDonald I. 1979. Journal of Agricultural Science. 92, 499-503.

## Anexo 8.

# Predicting forage intake by sheep through the Pampa Corte model

Pozo, C.A.\*; Kozloski, G.V.\*; Ribeiro Filho, H.M.N.†; Silveira, V.C.P.\*

\*Universidade Federal de Santa Maria, Santa Maria, RS, Brazil;

†Universidade do Estado de Santa Catarina, Lages, SC, Brazil

**Key words:** intake; model; herbage; sheep

### Abstract

Forage intake (FI) is the main factor affecting performance of grazing ruminants. However, FI cannot be measured directly and its determination in grazing situations remains still a challenge. Pampa Corte is a mechanistic dynamic model which predicts the intake and productive performance of grazing ruminants, being the first one based on rumen capacity and physical constraints of intake. However, the accuracy of this model on predicting FI was still not consistently validated with data from controlled trials. Therefore, the aim of the present study was to evaluate the accuracy of Pampa Corte model for estimating FI by sheep in digestibility trials. Individual data ( $n = 164$ ) of observed intake, body weight and chemical composition of consumed diet were taken from eight indoor digestibility trials with male sheep housed in metabolic cages and fed only forage *ad libitum*. The diets were composed of tropical grasses and legumes. Individual data of FI were averaged by treatment ( $n = 26$ ) into each experiment and mean values of FI predicted by Pampa Corte model were compared to those observed in digestibility trials through correlation and regression analysis. Positive correlation ( $R = 0.82$ ;  $P < 0.01$ ) and linear relationship ( $R^2 = 0.66$ ;  $P < 0.01$ ) were observed between measured and predicted FI, however the slope of the linear equation was considerably higher than 1 ( $slope = 1.3$ ). In conclusion, despite showing high precision, the Pampa Corte model underestimated the FI by on average 23 %. Further studies should be conducted to identify the factors explaining this discrepancy towards the model improvement.