

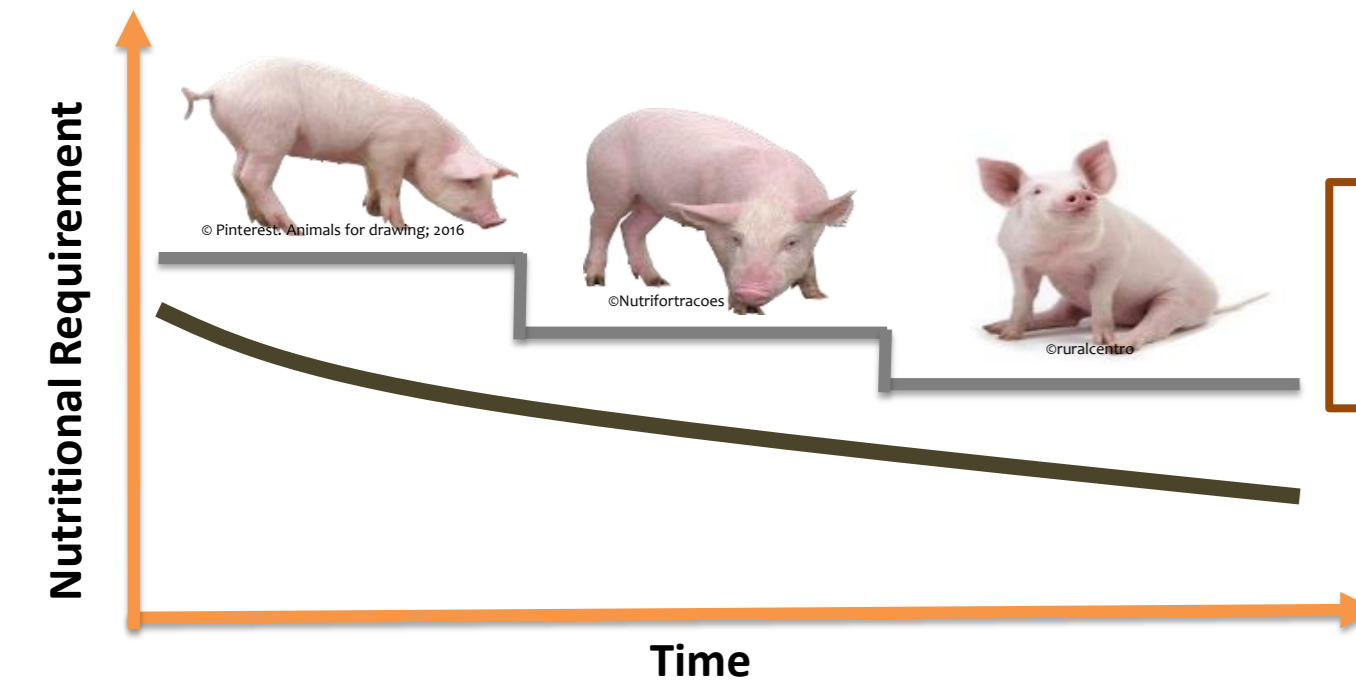
Sequential feeding with diets varying differ in amino acid content on nutrient balance in growing-finishing pigs

A. M. Veira^{*1,2}, L. S. Santos³, P. H. R. F. Campos⁴, L. Hauschild²

¹FAPESP Scholarship, São Paulo, Brazil, ²São Paulo State University, Jaboticabal, Brazil, ³Federal Rural University of Rio De Janeiro, Seropédica, Brazil, ⁴Federal University of Viçosa, Viçosa, Brazil.

*alini.mari@hotmail.com

Introduction



Diets are formulated according to the stage of animals growth.

Feeding pigs with different diets throughout the day, through the technique of sequential feeding, improves nutrient balance?



Objective

This study evaluated the effect of conventional and sequential feeding programs with diets varying in amino acid content over the day on nutrient balance for growing-finishing pig.

Material and Methods

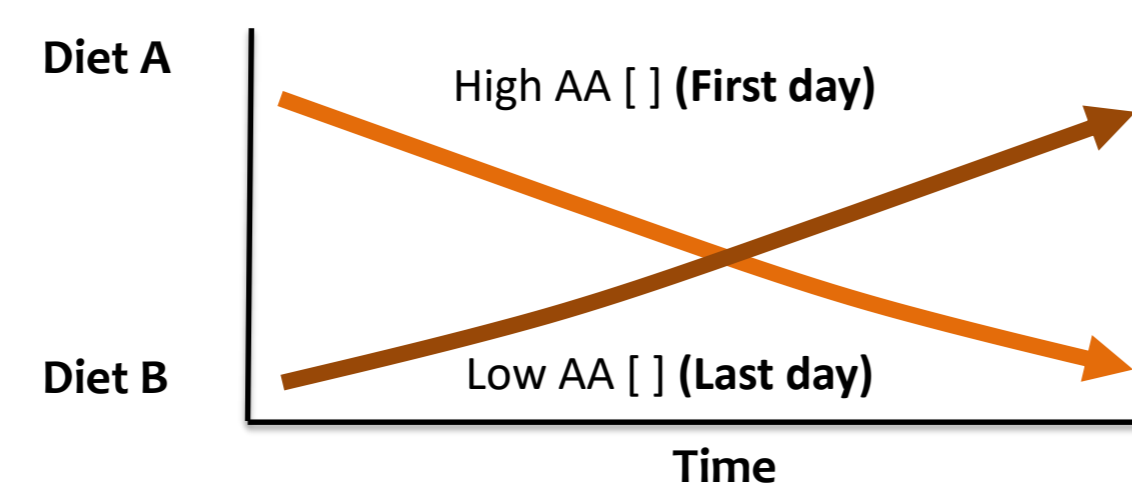
68 barrows
25,00 ± 2,04 kg
4 Treatments – 17 replicates



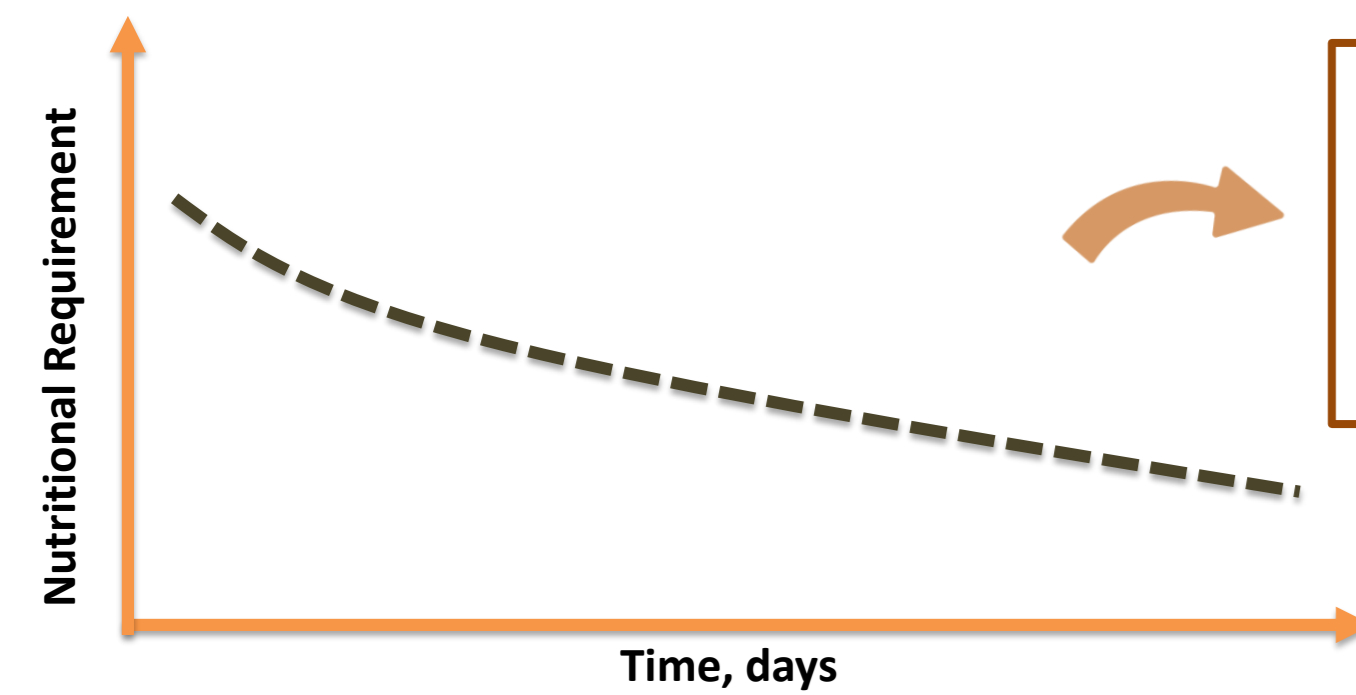
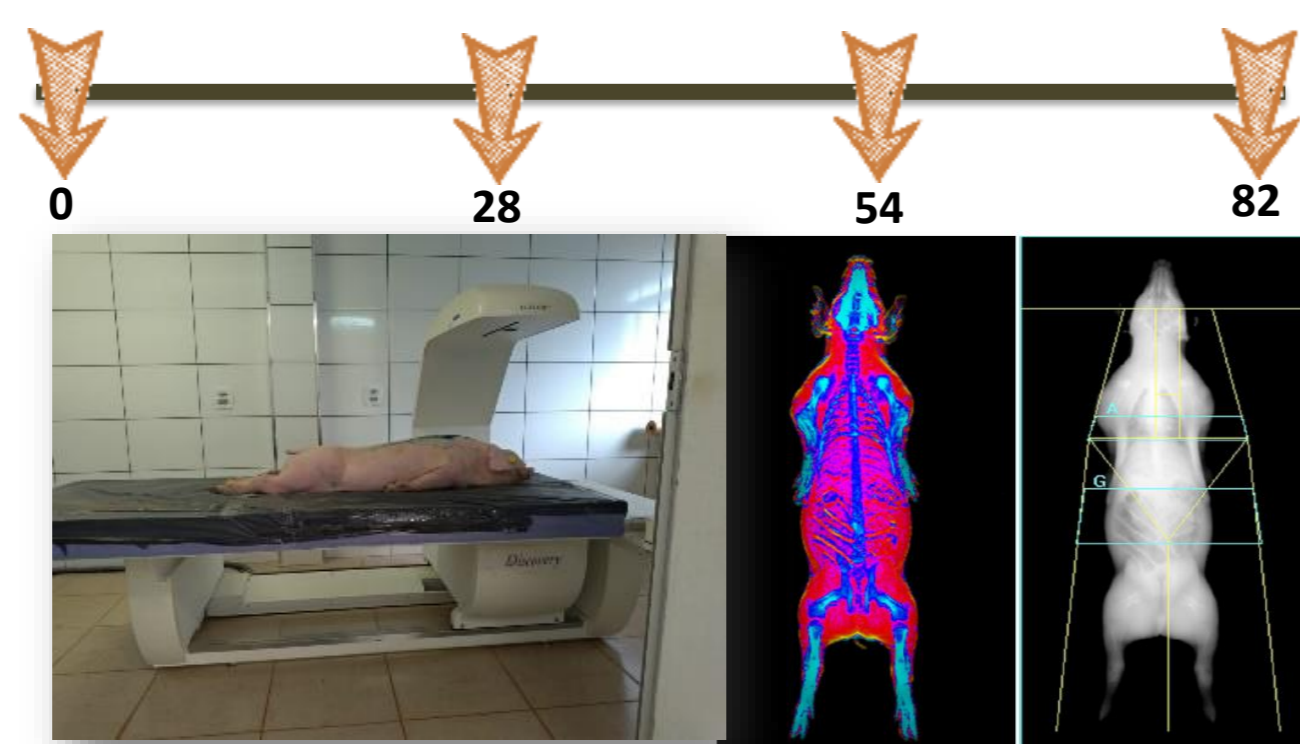
Feeding program	AA level	Day period	
		0h – 1159h	12h – 2359h
Conventional	100	100	100
Sequential	80-120	80	120
Sequential	70-130	70	130
Sequential	60-140	60	140



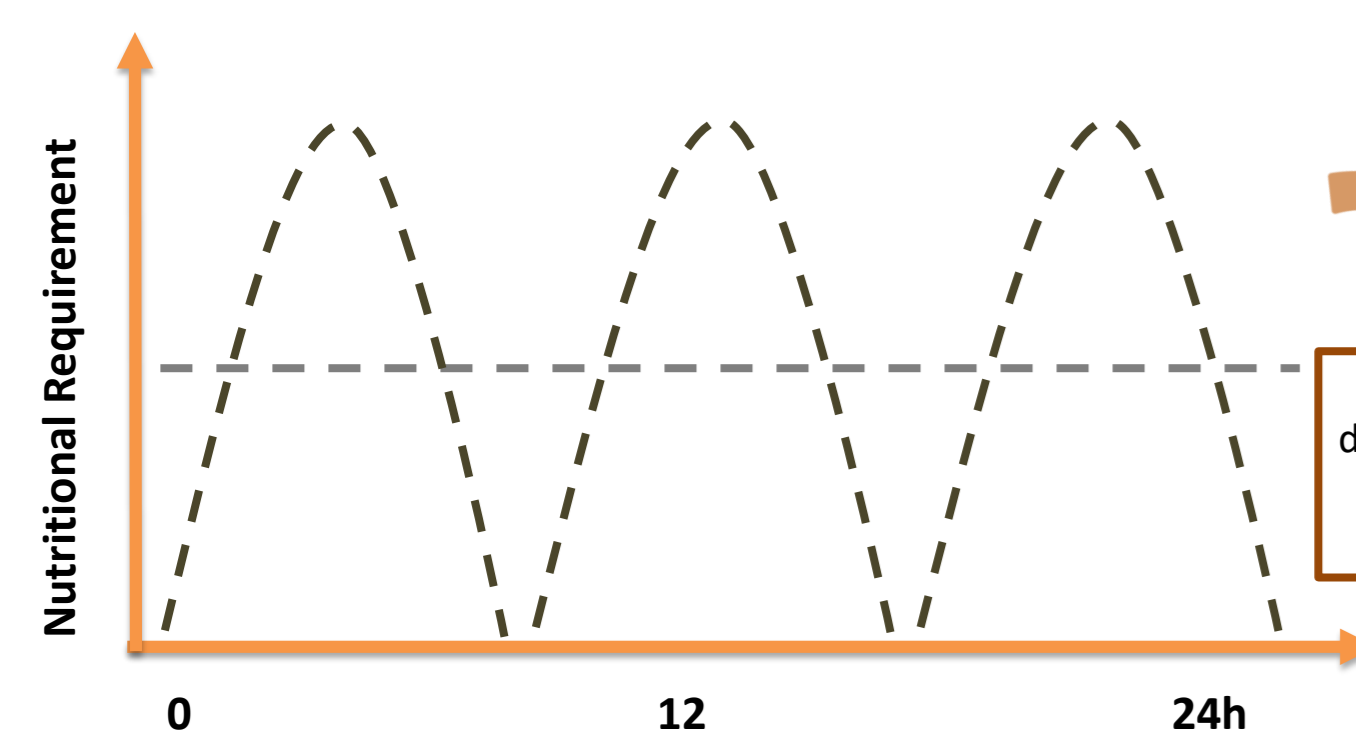
Pigs were fed a proportional mixture of diets A and B.



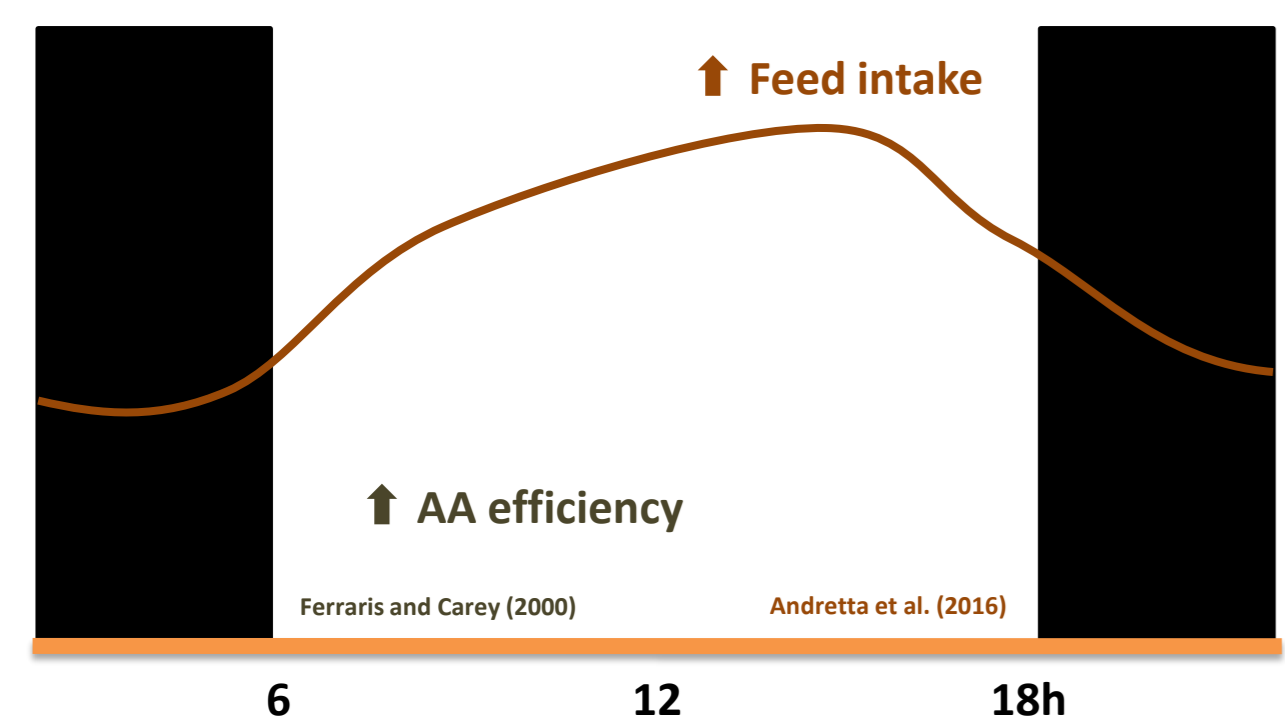
Body protein (Pomar and Rivest, 1996);
Body phosphorus (Létourneau-Montminy et al., 2015);
Nitrogen and phosphorus efficiency: relation between deposition and intake;
Lysine efficiency: relation between protein deposition and lysine intake, assuming that 7% of body protein is lysine (Mahan and Shields, 1998).



Daily feeding programs allow a better adjustment of diet composition to nutritional requirements of animals.



And throughout the day is this requirement constant or is there variation?



Statistical analysis



Contrast 1	CONV 100	vs	SEQ 80-120
Contrast 2	CONV 100	vs	SEQ 70-130
Contrast 3	CONV 100	vs	SEQ 60-140

P < 0,05
0,05 < P ≤ 0,10



Results and Discussion

	Feeding programs				SEM	Contrast P-values ²		
	CONV ³	SEQ80-120 ³	SEQ70-130 ³	SEQ60-140 ³		C ₁	C ₂	C ₃
Phase 1 (25 to 50 kg)								
ADFI, kg	1.23	1.25	1.37	1.15	0.106	0.78	0.13	0.41
Crude protein intake, g/d	163.93	180.25	203.06	188.37	16.469	0.32	0.01	0.10
N retention ³ , g/d	14.13	14.99	16.44	16.16	1.353	0.47	0.05	0.09
N excretion, g/d	12.10	13.85	16.05	13.98	1.739	0.25	0.01	0.22
P intake, g/d	4.89	5.33	5.96	5.52	0.498	0.31	0.01	0.15
P retention ⁴ , g/d	1.85	2.17	2.32	2.38	0.226	0.10	0.01	0.01
P excretion, g/d	3.04	3.16	3.64	3.14	0.364	0.70	0.06	0.76
N retention efficiency ⁵ , %	51.24	50.47	49.59	51.30	1.320	0.68	0.38	0.97
P retention efficiency ⁵ , %	38.21	40.95	39.66	42.08	1.303	0.13	0.42	0.03
Lys efficiency ⁶ , %	56.28	55.21	54.01	55.85	1.481	0.60	0.26	0.83
Phase 2 (50 to 70 kg)								
ADFI, kg	1.46	1.57	1.67	1.64	0.167	0.46	0.16	0.22
Crude protein intake, g/d	210.31	225.87	240.50	237.93	24.640	0.46	0.17	0.21
N retention ³ , g/d	15.08	15.76	17.31	17.32	1.944	0.68	0.20	0.20
N excretion, g/d	18.57	20.38	21.17	20.75	2.511	0.40	0.25	0.34
P intake, g/d	6.72	7.19	7.66	7.54	0.772	0.49	0.17	0.24
P retention ⁴ , g/d	2.81	3.00	3.29	3.35	0.394	0.59	0.18	0.13
P excretion, g/d	3.91	4.19	4.37	4.19	0.495	0.52	0.29	0.53
N retention efficiency ⁵ , %	44.86	44.23	45.44	45.77	1.493	0.74	0.76	0.65
P retention efficiency ⁵ , %	41.03	40.89	42.09	43.49	1.578	0.94	0.61	0.25
Lys efficiency ⁶ , %	51.54	50.74	52.18	52.36	1.775	0.72	0.78	0.73

Summarizing...

- Pigs from SEQ80-120 had a similar nutrient balance than pigs from CONV.
- Pigs from SEQ70-130 had higher nitrogen and phosphorus retention, however higher excretion than CONV pigs.
- Pigs from SEQ60-140 had higher nitrogen and phosphorus retention with a similar excretion that pigs from CONV.

Conclusion

According to our results, sequential feeding program improves nutrient balance of pigs at the beginning of the growth period.

Acknowledgment

Fapesp scholarship grant number 2017/18734-1
For more information about this project access



SCAN ME