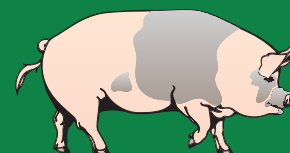
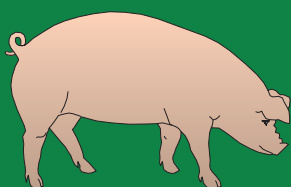


EFFECTS OF SUPPLEMENTED DIETARY L-TRYPTOPHAN ON GROWTH PERFORMANCE OF 15- TO 30- KILOGRAM PIGS



¹Lucyna Buraczewska, ¹Ewa Świech, ²Laurent LeBellego, and ²Delphine Melchior

¹The Kielanowski Institute of Animal Physiology and Nutrition, PL 05-110 Jabłonna, Poland

²Ajinomoto Eurolysine, 153, rue de Courcelles, 75817 Paris Cedex 17, France

The aim of the study was to investigate the effect of four tryptophan : lysine (Trp:Lys) ratios (0.14, 0.17, 0.20, and 0.23) on feed intake and growth performance of pigs from about 15 to 30 kg of BW.

MATERIALS AND METHODS

DIETS

- Main ingredients (g kg⁻¹): corn - 280, wheat - 300, corn gluten meal - 120, full fat soyabean - 60, soyabean meal - 60, peas - 90 and crystalline amino acids
- 13.3g Lys and 14.4 MJ ME per kg
- Without antibiotics
- Four Trp:Lys ratios of 0.14, 0.17, 0.20, and 0.23

ANIMALS

- Pigs with high-lean gain potential, synthetic line 990, Poland
- 16 pigs per group, 2 pigs (1 barrow + 1 gilt) in each pen
- Body weight from about 15 to 30 kg
- Diets fed *ad libitum* during 25 days

DETERMINATIONS

For two feeding periods: 0-14 d (at 15-25 kg of BW) and 15-25 d (over 25 kg of BW) the following measurements were taken:

- Average daily gain (ADG)
- Average daily feed intake (ADFI)
- Feed/gain ratio (F/G)

RESULTS

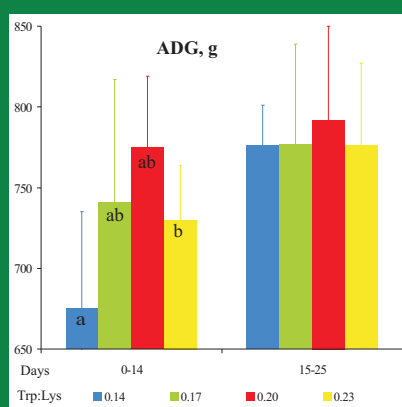


Figure 1. Effect of four Trp:Lys ratios on average daily gain (ADG) in pigs during two periods of 25-d experiment

P-value	Days	
	0-14	15-25
main effect	0.012	0.903
quadratic effect	0.011	0.623

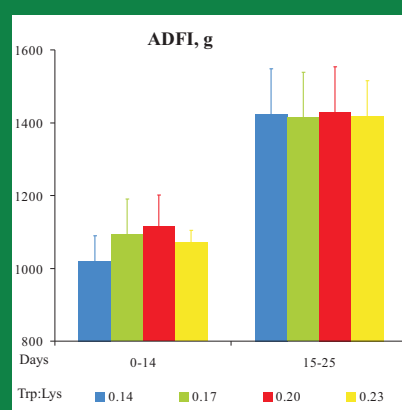


Figure 2. Effect of four Trp:Lys ratios on average daily feed intake (ADFI) in pigs during two periods of 25-d experiment

P-value	Days	
	0-14	15-25
main effect	0.110	0.996
quadratic effect	0.048	0.993

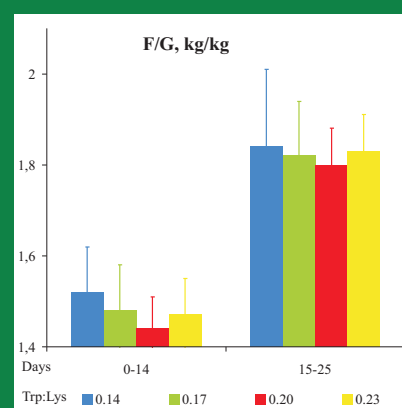


Figure 3. Effect of four Trp:Lys ratios on feed : gain ratio (F/G) in pigs during two periods of 25-d experiment

P-value	Days	
	0-14	15-25
main effect	0.358	0.931
quadratic effect	0.287	0.595

In conclusion, the results suggest that pigs with high-lean gain potential, from 15 to 25 kg of body weight, can maximize their growth rate at total tryptophan:lysine ratio of 0.20 in feed containing 14.4 MJ of ME per kg and this effect is partly obtained through a higher feed intake. Despite in the period from 15 to 25 days there was no response to the Trp:Lys ratio, most likely in connection with lower lysine requirement, the benefit of the 20% Trp:Lys treatment over the other treatments in the previous period is maintained up to 25 kg.

Average body weight (BW) of pigs fed during 25 days with diets of different tryptophan:lysine (Trp:Lys) ratios

	Trp:Lys ratios			
	0.14	0.17	0.20	0.23
Initial BW, kg	15.34	15.51	15.43	14.90
BW after 7 days, kg	20.02	20.45	20.74	19.93
BW after 14 days, kg	24.88	25.88	26.27	25.12
BW after 21 days, kg	31.08	32.10	32.80	31.49
BW after 25 days	33.56	34.49	35.01	33.72