The effects of supplemented dietary L-tryptophan on growth performance of 15- to 30-kilogram pigs

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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.

RESULTS

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

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

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

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.

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

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<tr>
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<th>Trp:Lys ratios</th>
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<tr>
<td></td>
<td>0.14</td>
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<tr>
<td>Initial BW, kg</td>
<td>15.34</td>
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<tr>
<td>BW after 7 days, kg</td>
<td>20.02</td>
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<tr>
<td>BW after 14 days, kg</td>
<td>24.88</td>
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<tr>
<td>BW after 21 days, kg</td>
<td>31.08</td>
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<tr>
<td>BW after 25 days</td>
<td>33.56</td>
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