Preference for diets with L-Threonine in pigs with different Threonine status

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INTRODUCTION

- Individual amino acids could serve as indicators of protein in the feed.
- Their sensorial identification by the pigs could affect diet palatability.
- The addition of free L-Threonine in feed might improve diet palatability.

OBJECTIVE

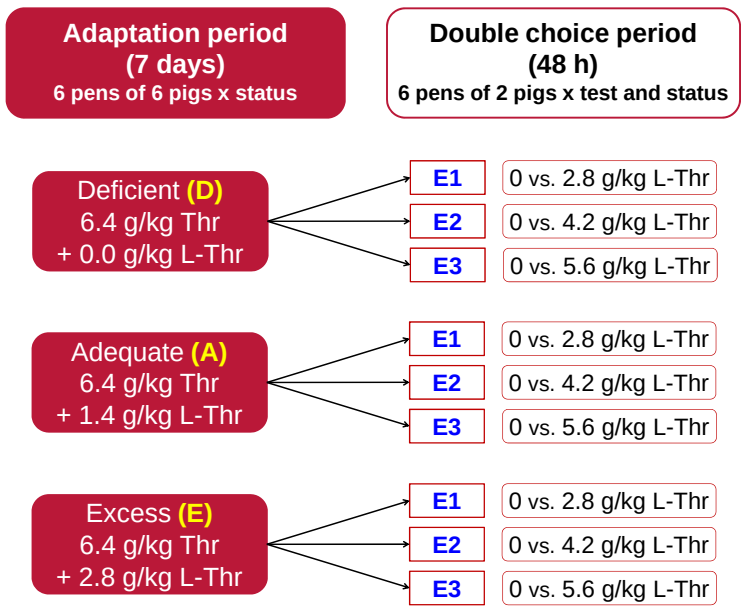
A double choice test was conducted to determine the preference for diets with different free L-threonine (**L-Thr**) levels in pigs under different threonine (**Thr**) status.

MATERIALS AND METHODS

Experimental design

- 108 post-weaned pigs (18.7±1.4 kg BW) were used.
- Adaptation period: Three **Thr** status (diets D, A and E).
- Double-choice period:
  - Reference (Deficient basal diet): 6.4 g/kg **Thr** (without added free-L-Thr).
  - Test diets (Excess – E1, E2 and E3): Same as reference with added free **L-Thr** at 2.8, 4.2 and 5.6 g/kg.

$$\%\ Preference = \frac{\text{Test diet intake}}{(\text{Test diet intake}) + (\text{Reference diet intake})} \times 100$$



Statistical analysis

- Preference values were analyzed considering the main effects of **Thr** status (D, A and E), **L-Thr** level (E1, E2 and E3), and their interaction.
- Each mean preference value was also compared to the neutral value of 50% with the Student's t-test.

RESULTS AND DISCUSSION

Table 1. Effect of Thr status (deficient, adequate or excess) of pigs on the double choice preference (% of total feed intake) for diets containing different levels of L-Threonine in excess (E1 to E3).

L-Thr Level	Thr status D	Thr status A	Thr status E	L-Thr level means
E1	49.7	42.5	60.5	50.9
E2	53.4	**35.6***	66.9	52.0
E3	52.5	50.2	**69.7***	57.5
Thr Status means	51.9[b]	42.8[b]	65.7[a]	53.5
Thr status effect (Pr>F)				0.003
L-Thr level effect (Pr>F)				0.531
Thr status x L-Thr level effect (Pr>F)				0.832
Root MSE				18.67

* *Values with this symbol are significantly different from 50% (P<0.05).*
[a, b] *Values are significantly different (P<0.05).*

- Significant effects were observed due to **Thr** status, but no effects of **L-Thr** inclusion level or interaction between the 2 factors were observed.
- Pigs on the **E** status had a higher preference for diets supplemented with free **L-Thr** than those on **A** or **D** status.
- The preference for diet **E3** in the pigs with an **E** status was significantly higher than 50%. On the contrary, preference for diet **E2** in the pigs with **A** status was significantly lower.

CONCLUSION

Pigs fed on diets with Thr in excess may develop a preference for free L-Thr.