Preference for diets with free DL-Methionine in pigs with different methionine status

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INTRODUCTION

Pig's sensorial perception of amino acids in dietary protein (via umami taste receptors) could serve as indicator of protein in the feed and influence the palatability of the diets. The addition of free amino acids, such as DL-Met, may have a different effect on diet palatability than protein bound AA.

OBJECTIVE

A double choice test was conducted to determine preference of diets with free DL-methionine (**DL-Met**) in pigs under different methionine (**Met**) status.

MATERIALS AND METHODS

Experimental design

➢ 108 post-weaned pigs (18.5±2.4 kg BW) were used.

Adaptation period (7 days)
6 pens of 6 pigs x status

Double choice period (48 h)
6 pens of 2 pigs x test and status

Deficient **(D)** 2.6 g/kg Met + 0.0 g/kg DL-Met	E1	0 vs. 3.2 g/kg DL-Met
	E2	0 vs. 4.8 g/kg DL-Met
	E3	0 vs. 6.4 g/kg DL-Met
Adequate **(A)** 2.6 g/kg Met + 1.6 g/kg DL-Met	E1	0 vs. 3.2g/kg DL-Met
	E2	0 vs. 4.8 g/kg DL-Met
	E3	0 vs. 6.4 g/kg DL-Met
Excess **(E)** 2.6 g/kg Met + 3.2 g/kg DL-Met	E1	0 vs. 3.2 g/kg DL-Met
	E2	0 vs. 4.8 g/kg DL-Met
	E3	0 vs 6.4g/kg DL-Met

➢ Adaptation period: Three **Met** status (diets D, A and E).

➢ Double-choice period:

- Reference (Deficient basal diet): 2.6 g/kg **Met** (without added free-DL-Met).
- Test diets (Excess – E1, E2 and E3): Same as reference with added free **DL-Met** at 3.2, 4.8 and 6.4 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 **Met** status (D, A and E), **DL-Met** 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

➢ No statistically significant effects were observed due to **Met** status, **DL-Met** level of excess or their interaction.

➢ Overall the addition of **DL-Met** resulted in a preference value of 54.7%, which was significantly higher ($P \leq 0.05$) than the neutral value of 50%.

➢ The results indicate that the addition of free **DL-Met** improves feed preference in pigs.

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

DL-Met Level	Met status D	A	E	DL-Met level means
E1	55.7	51.7	55.7	54.9
E2	56.2	56.3	56.4	54.9
E3	52.9	56.7	50.8	54.3
Met Status means	54.4	56.3	53.5	54.7*
Met status effect (Pr>F)				0.833
DL-Met level effect (Pr>F)				0.989
Met status x **DL-Met level** effect (Pr>F)				0.933
Root MSE				14.27

** Values with this symbol are significantly different from 50% (P<0.05).*

CONCLUSION

DL-Met improves feed preference in pigs, independently of its inclusion level and the Met status of pigs.