Rhodimet®

Effect of methionine sources and inclusion level on performance and carcass traits of growing-finishing pigs reared under hot climate conditions

Methionine is one of main limiting amino acids in growing-finishing pig diets, and the inclusion of synthetic methionine sources is a standard nutritional procedure. This allows to match animal requirement for this amino acid while optimizing protein source utilization and consequently reducing the cost of feed.

Behind the nutritional properties linked to protein synthesis, methionine has been shown to play other critical biological functions in various processes involving sulfur containing compounds. One of this is linked with the conversion of methionine in glutathione and taurine, two molecules that improve the oxidative status of animals, frequently promoted by heat stresses. If we then consider that during heat stress pigs tend to reduce their feed intake, and consequently intake of all nutrients including methionine, it would be logic to evaluate the correct recommended level of this amino acid in the diets of pigs reared under hot climate conditions.

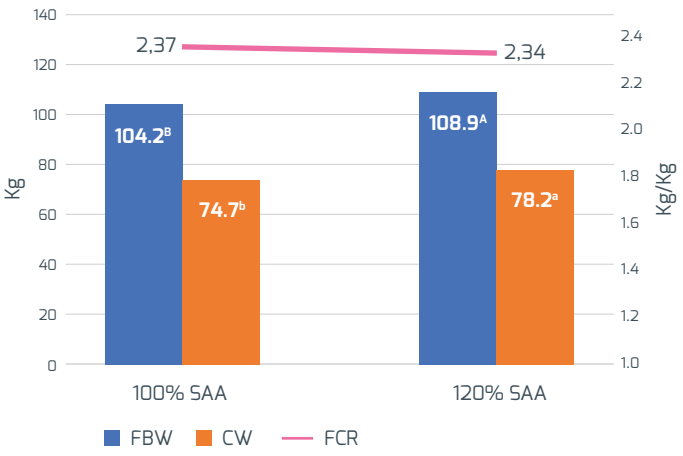
For this reason, a 2 x 2 factorial trial was conducted at the Akei Animal Research center, São Paulo, Brazil to evaluate the effect of two methionine sources, DL-Methionine (DL-Met) and DL-Hydroxy Methionine (OH-Met), and two dosages, 100 and 120% the recommendation of the Brazilian Table for Poultry and Swine (2017), on pig performances and carcass traits. Two hundred pigs (PIC 337 x Camborough), half male and half female, were fed the different experimental diets starting from 63 days of age till slaughtering at 160 days of age. During the rearing period the average temperature was above the standard thermal neutrality (27.1 ± 4,5°C), with a relative humidity of 61.7 ± 5.6%. The diets were formulated using primarily corn, soybean meal, wheat and DDGS, and were administered ad libitum. The two sources of methionine: OH-Met and DL-Met, were supplemented to the diets on an equimolar basis.

Feeding period was split in 4 phases, Grower I & II and Finisher I & II, and detailed information on trial design and feed formulation are described in the scientific publication by Caio et al. (2022).

Results

No differences on animal performances or carcass weight were recorded between the methionine sources, with the inclusion of DL-Met or OH-Met at equimolar basis. Once more, this is confirming the 100% efficacy of OH-Met.
We also took a closer look at the comparison of the two methionine inclusion levels. Pigs fed diets with 120% of Sulfur Amino Acids (SAA) recommendation registered the highest final body (FWB, p=0.055) and carcasses weights (CW, p<0.001), better average daily gain (p=0.030). Pigs also showed similar feed conversion rate (FCR, p=0.363) and daily feed intake (p=0.141).

Figure 1 - Performance of pigs fed two levels of SAA



With regards to carcass traits, pigs fed diets with the highest SAA level registered higher quantity of lean meat (P<0.001), while pig fed diets with OH-Met, regardless the SAA level, presented a greater loin depth (P=0.002) compared to the ones fed diets with DL-Met.

Conclusions

Pigs reared in hot climate conditions showed better performances and lean meat production when fed with high level of digestible sulfur amino acids 20% above the recommendation of the Brazilian Table for Poultry and Swine (2017). At the prices of Q4 2022, the extra addition of Methionine will result in an extra benefit of 7.65 €/pig with a positive Return On Investment of 20.27. With same performances as DL-Met, OH-Met is a valuable source of methionine for pigs reared under hot climate conditions as it provides additional benefits on some carcass traits.