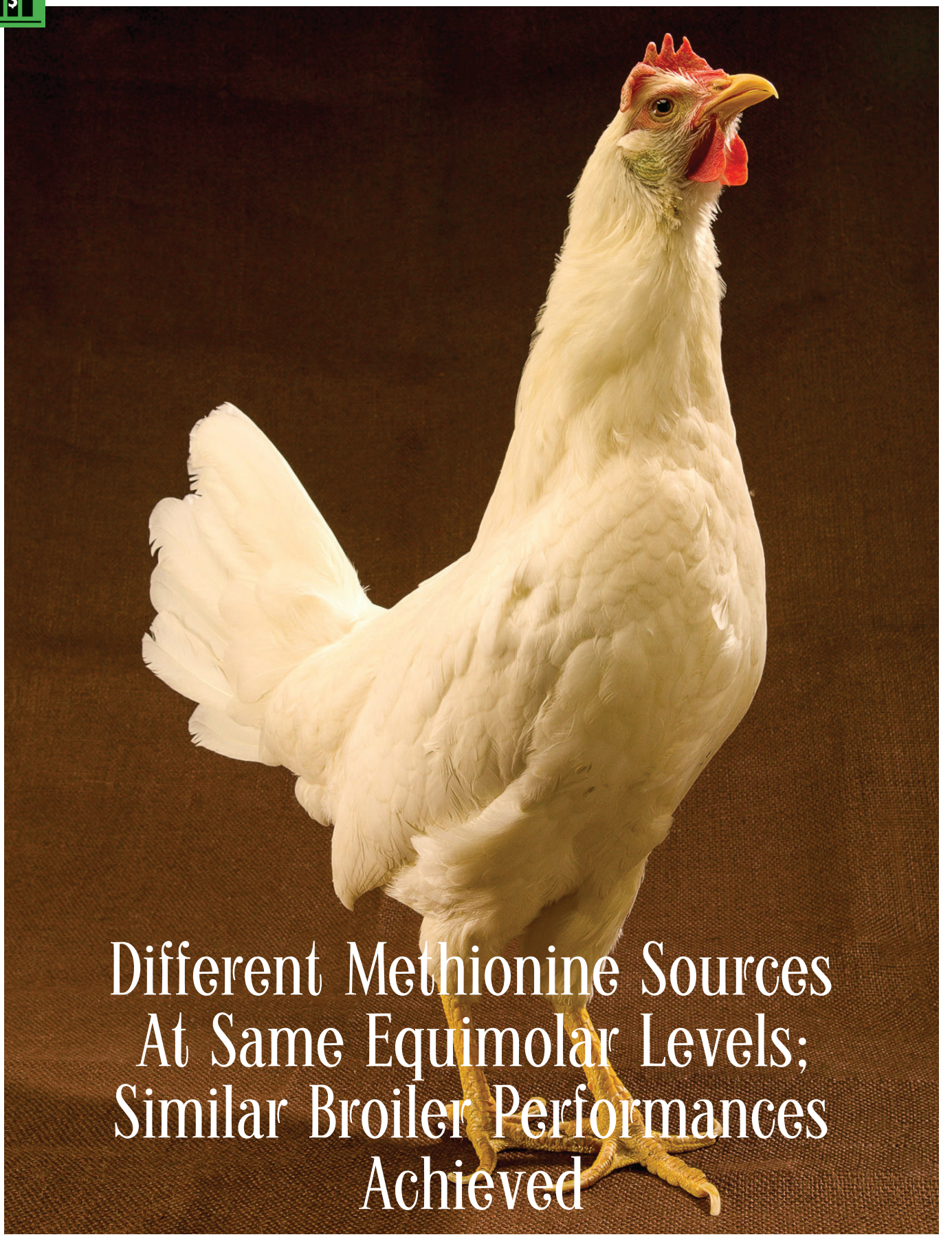

Different Methionine Sources At Same Equimolar Levels; Similar Broiler Performances Achieved

Trials at the Center for Expertise and Research on Nutrition (CERN) confirmed that, when the same equimolar levels of three main methionine sources - DL-Methionine (DL-Met), L-Methionine (L-Met) and DL-HMTBA - were added to a basal methionine deficient diet, similar growth performances of broilers were observed.

Trial 1: 630 male chickens (reared from 1 to 36 days) were fed with seven diets: a Met-deficient corn-soy basal diet (0.30%, 0.28% and 0.26% of digestible methionine in diets, respectively, for 0-10 days, 11-24 days and 25-36 days) and six treatments with three supplemented levels of either DL-Met or L-Met.

Methionine efficacy was calculated as the intake of extra methionine needed to produce 1g of extra body weight gain (Agostini et al., Poultry Science, 2015).

Performance parameters (feed intake, body weight gain and feed conversion ratio) were not significantly different for broilers fed with either DL-Met or L-Met at each supplement level. For example, based on the requirement of total sulfur amino acids (TSAA; 0.36%, 0.33% and 0.22% added methionine for starter, grower and finisher phases), the methionine efficacy was 13.46 ± 0.10mg of methionine/g of extra body weight gain for DL-Met diet, which was not significantly different from 13.48± 0.23 mg of methionine/g of extra gain for the L-Met diet.

The efficacy of DL-Met relative to L-Met was calculated as the ratio of the steepness coefficients of the exponential model to be 100% with a confidence interval of 97%; 102%. Therefore, it is concluded that DL-Met and L-Met are equivalent to the level required to sustain broilers growth performance.

Trial 2: L-Met and DL-HMTBA were compared in the same conditions as trial 1. DL-HMTBA was supplemented in the feed assuming 100% bioavailability. Results demonstrated that L-Met and DL-HMTBA were also equivalent to the level required to sustain broiler performances at each of the three doses tested.

For example, based on the requirements in TSAA (0.36%, 0.33% and 0.22% added methionine equivalent levels for starter, grower and finisher phases), the methionine efficacy was 14.27 ± 0.23mg of methionine/g of extra gain for DL-HMTBA diet, which was not significantly different from 13.94 ± 0.15mg of methionine/g of extra gain for the L-Met diet. The efficacy of DL-HMTBA relative to L-Met was calculated to be 100% with a confidence interval of 98%; 102%, thus showing the full efficacy of DL-HMTBA to sustain broiler performance.

Based on trial results, three methionine sources, supplemented at the right equimolar basis, will deliver the same efficacy to sustain broilers' growth.

Trial 3: 1,365 Ross PM3 male chickens were fed diets supplemented with either DL-Met, L-Met or DL-HMTBA at three different levels plus a Met-deficient basal diet, from 0 to 42 days. DL-HMTBA was added in the feed (assuming 100% bioavailability).

As expected, results proved the equivalent efficacy of L-Met, DL-Met and DL-HMTBA on an equal-molar basis.

During the entire trial period, no significant difference was observed between methionine sources on feed intake, body weight gain, feed conversion ratio and methionine efficacy (Batonon-Alavo et al., 25th WPC Beijing, 2016).

As shown in Figure 1, body weight gain was improved with the increasing level of TSAA at either methionine form, until a plateau is reached. The relative efficacy of DL-HMTBA versus DL-Met, DL-HMTBA versus L-Met, and L-Met versus DL-Met were calculated to be 101%, 102% and 100%, respectively.

Therefore, in conclusion, these three methionine sources, supplemented at the right equimolar basis, will deliver the same efficacy to sustain broilers' growth performance.

- DOLORES I. BATONON-ALAVO and YVES MERCIER, Adisseo

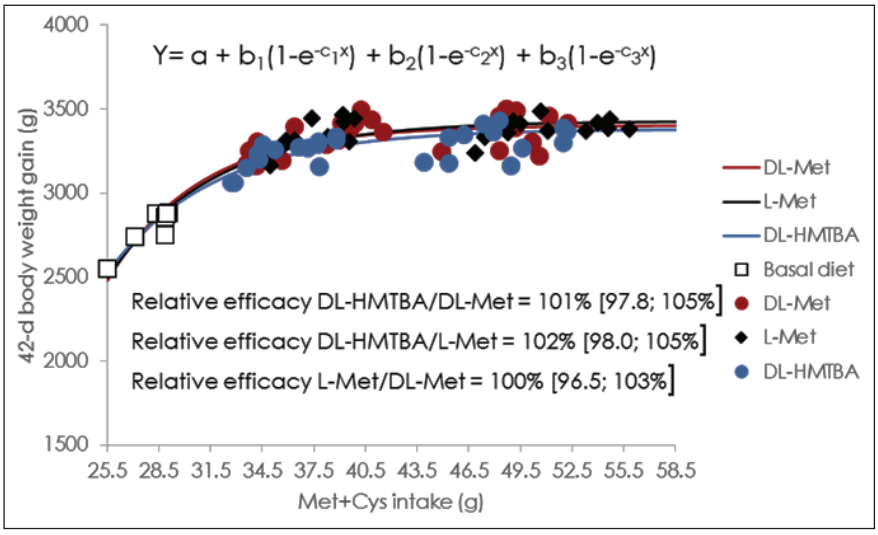

Figure 1. Exponential modeling of body weight gain as function of total sulfur amino acids (TSAA) intake from 0 to 42 days (Trial 3)