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Excential Selenium 4000 improves performance during high stocking density in broilers

Selenium during stocking density induced stress

Selenium (Se) is an essential trace element that reduces oxidative stress and positively affects reproduction, performance and immune function. High stocking densities in broilers are known to induce stress and therefore negatively affect performance, health and animal welfare. During such stressful conditions, selenium supplementation can be applied to reduce the negative effects of stress. Selenium can be supplemented in inorganic or organic form. L-selenomethionine (organic selenium) exclusively can be stored in animal tissues and provides a continuous source of selenium, which supports the animal during times of high stress. Excential Selenium 4000 is a source of organic selenium and exists 100% in the form of L-selenomethionine.

Excential Selenium 4000 trial in broilers

In collaboration with Kasertart University in Thailand, the effect of Excential Selenium 4000 on growth performance and meat quality was tested in broilers, while increasing the stocking density. The trial consisted out of a 2 x 3 design; two treatments consisting of sodium selenite supplementation or Excential Selenium 4000 supplementation, both at 0.3 mg Se/kg feed, and this for 3 different applied stocking densities; standard stocking density (29.84 kg/m²), +10% stocking density (32.84 kg/m²) and +16% stocking density (34.63 kg/m²).

Improved performance and meat quality

For the overall period (starter-finisher), higher stocking densities did not negatively affect performance. Excential Selenium 4000 supplementation, compared to sodium selenite, showed 2% increase in body weight (p=0.002), a 2.5% better body weight uniformity (p=0.003) and a 2% improvement in feed conversion ratio (FCR) (p=0.04), for all tested stocking densities.

Besides performance parameters, meat quality was also taken into account. Tenderness was determined with the Warner-Bratzler method to measure shear force. Excential Selenium 4000 showed a 12% decrease in shear force of breast meat compared to sodium selenite (p=0.05), which indicates an increase in tenderness and an improvement of meat quality.

Excential Selenium 4000 benefits economical production

In summary, the applied higher stocking densities did not seem to have a negative effect on broiler performance. However, the replacement of sodium selenite with Excential Selenium 4000 clearly improved growth performance (body weight, body weight uniformity, FCR) regardless of the stocking density. Shear force, as an important parameter to assess meat quality, was shown to be lower when the birds received Excential Selenium 4000 instead of sodium selenite. This indicates a higher meat tenderness and will therefore allow for a higher consumer satisfaction. Overall, by increasing performance, Excential Selenium 4000 allows for a more economical production. Taking into account the cost of Excential Selenium 4000 compared to sodium selenite, a return on investment (ROI) can be calculated of 1 : 9.6.

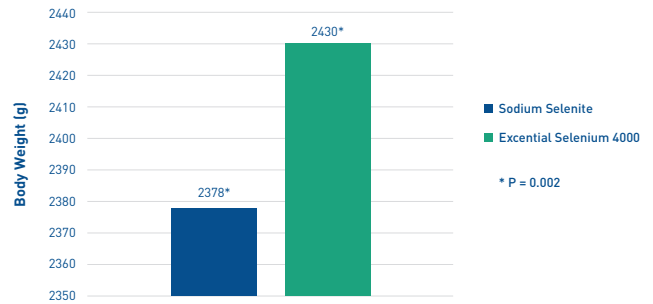


Figure 1: Body Weight (g)

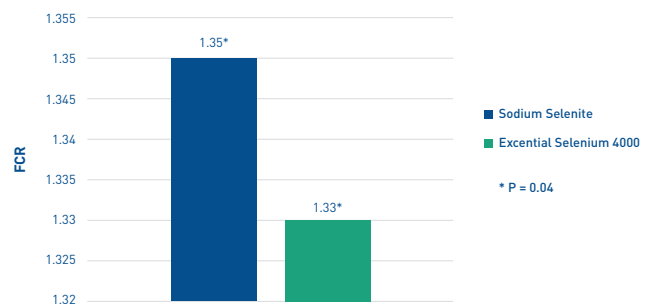


Figure 2: Feed Conversion Ratio

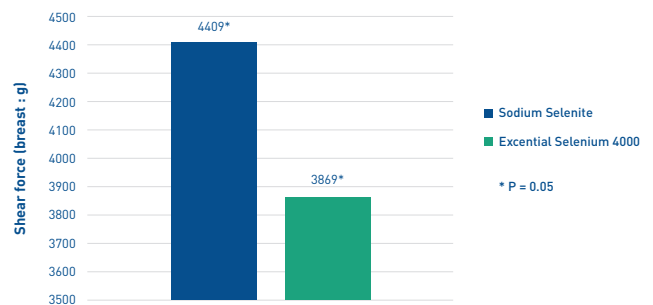


Figure 3: Shear Force Measurements (breast : g)



Higher stocking density did not negatively affect performance



Excential Selenium 4000 improves growth performance (BW, BW uniformity, FCR)



Excential Selenium 4000 improves meat tenderness



ROI of 1 : 9.6 for use of Excential Selenium 4000

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