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Excential Selenium 4000 in sow nutrition improves selenium status in piglets

BASED ON RESEARCH BY THE NORWEGIAN UNIVERSITY OF LIFE SCIENCES (NMBU)

Selenium is an essential trace element with functions in reducing oxidative stress and improving reproduction and immune status. During gestation and lactation, oxidative stress levels increase. High performing sows require good antioxidant levels in order to prevent negative effects of high oxidative stress to the offspring. Adding sufficient amounts of selenium to the diet of sows, can improve the antioxidant status of sows and piglets. There are different sources of selenium available that can be used to enrich the diet; inorganic forms such as sodium selenite and organic forms such as L-selenomethionine (**Excential Selenium 4000**). L-selenomethionine is transferred into colostrum and milk to a higher extent than sodium selenite, which allows for a higher transfer of selenium from sows to piglets. This will ensure a good antioxidant status in the piglets, which will support a healthy growth and development.

The Norwegian University of Life Sciences (NMBU) performed a study to evaluate the effects of two different concentrations of sodium selenite and L-selenomethionine (**Excential Selenium 4000**) in high-yielding sows. The sows feed was supplemented with selenium from one month prior to farrowing until the end of lactation (± 30 days). The piglets received from one week of age a pelleted feed supplemented with selenium similarly to the sows' diets.

EXCENTIAL SELENIUM 4000 INCREASED SELENIUM TRANSFER TO SUCKLING PIGLETS VIA COLOSTRUM AND MILK

Selenium levels in colostrum and milk were higher for sows supplemented with **Excential Selenium 4000** and were increased with higher dosages (Figure 1). Levels of selenoproteins, such as SeIP, SeMet and SeAlb, were higher in the colostrum of sows that received **Excential Selenium 4000** (L-selenomethionine), and levels increased with higher dosages. Blood parameters, such as GLDH and GGT which are markers for oxidative stress, showed that sows supplemented with **Excential Selenium 4000** had better antioxidant status than sows supplemented with sodium selenite.

This shows that **Excential Selenium 4000** in sows nutrition allows for efficient transfer of selenium via colostrum and milk to the offspring and decreased the oxidative stress in highly prolific sows.

MATERNAL EXCENTIAL SELENIUM 4000 INCREASED SELENIUM CONCENTRATION IN PIGLETS

After consumption of colostrum and milk, piglets from sows that received **Excential Selenium 4000** showed higher selenium concentrations in plasma than piglets from sows that received similar levels of sodium selenite in their diet (Figure 2). Selenium concentrations in plasma were dose dependent. Blood parameters, such as AST and LDH, which indicate oxidative stress, indicated lower oxidative stress in piglets from sows supplemented with the highest levels of **Excential Selenium 4000**. These results show that **Excential Selenium 4000** is superior to sodium selenite in the transfer of selenium to suckling piglets, thereby providing the piglets a better antioxidant status.

EXCENTIAL SELENIUM 4000 INCREASES BODY WEIGHT OF PIGLETS

At birth, body weight for piglets in all groups was similar but after several days, body weight of piglets from sows that received low levels of sodium selenite were lower than for piglets from other groups (Figure 3).

EXCENTIAL SELENIUM 4000 FOR A HEALTHY START OF YOUNG PIGLETS

Substitution of dietary sodium selenite with **Excential Selenium 4000** beneficially supports high productive sows and their piglets. Efficient selenium transfer via colostrum and milk potentially improves piglets' health and growth. Looking into the near future, where the use of zinc oxide as a therapeutic agent to combat diarrhoea after weaning will be prohibited in the EU, supplementing the diet of sows and piglets with L-selenomethionine will allow piglets to have a better health status and bodyweight at weaning. This allows the piglets to be more robust and less susceptible to post weaning diarrhoea.

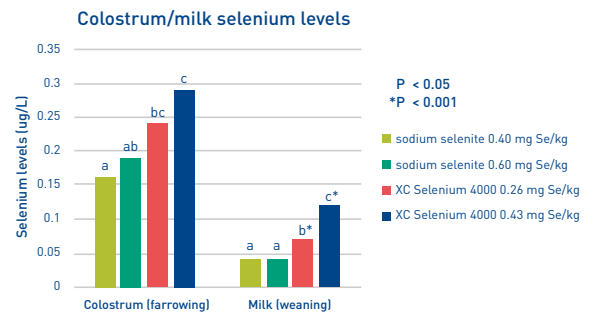


Figure 1: Selenium levels (ug/L) in colostrum (farrowing) and milk (weaning) for sodium selenite and Excential Selenium 4000 at different dosages (adapted from Falk et al. 2019)

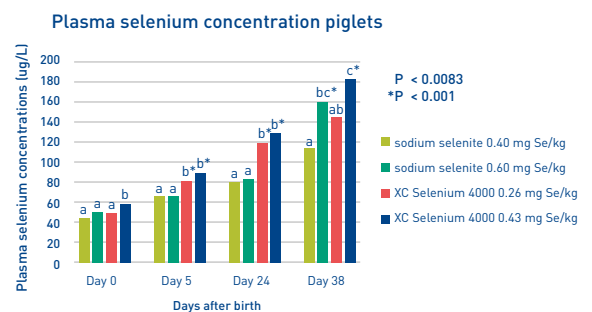


Figure 2: Selenium concentration (ug/L) plasma of piglets from sows fed with sodium selenite and Excential Selenium 4000 at different dosages (adapted from Falk et al. 2020)

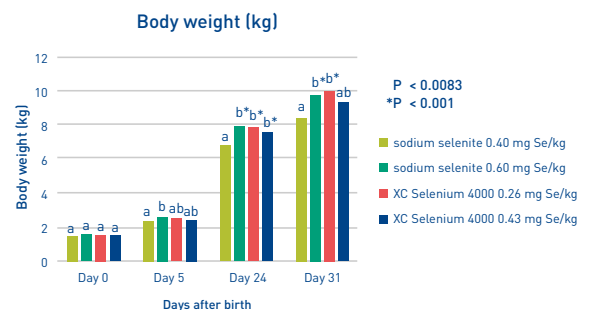


Figure 3: Body weight (kg) from birth until weaning (adapted from Falk et al. 2020)

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