COMPARISON OF NA-SELENITE AND SELENOMETHIONINE ORAL SUPPLEMENTATION ON HEALTH AND SELENIUM STATUS IN DEFICIENT BELGIAN BLUE CATTLE

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In Belgium, beef cattle are especially prone to selenium (Se) deficiency, mainly due to the deficiency in the soil and roughages but also to the high needs of the hypermuscled Belgian Blue breed (BB). The goal of this field experiment was to compare the effects of 2 different forms of oral Se supplementation on Se status and health in Se-deficient BB herds.

Two Se-deficient BB herds were selected. In each herd, 3 groups of 10 pregnant animals (5 heifers, 5 cows) were constituted. The trial was conducted as a double-blind study with 3 dietary treatments (based on total ration) : control (0.1 ppm Na-Se), Na-Se (0.5 ppm) and selenomethionine (Sel-Plex®, 0.5 ppm). Cows were supplemented at least 2 months before calving until the end of the winter period. Data on average daily gain (ADG) in calves, diseases and Se status (Glutathion-peroxydase in red blood cells [GPX], plasmatic Se [pSe], Se content in milk and colostrums) of both the dams and their calves were computed. Data were analyzed with linear model, least squares means and logistic regression (SAS).

All groups were deficient at the beginning. At the end of the study, pSe in the 2 farms was significantly higher ($p<0.0001$) in cows receiving Sel-Plex® than in cows from Na-Se and control groups. GPX was higher in Sel-Plex® and Na-Se groups than control group ($p=0.0001$). Control group remained deficient until the end of the study.

Se content in colostrums and milk was significantly higher ($p<0.0001$) in Sel-Plex® group than other groups and was correlated with pSe ($p<0.0001$).

Se status at birth was significantly higher in calves born from dams fed with Sel-Plex® comparing to Na-Se groups ($p<0.0001$). Plasmatic Se in calves remained higher 75 days after birth when dams were fed with Sel-Plex® comparing to Na-Se ($p=0.002$).

Diarrhoea was the most frequent disease in calves. Six percent, 21% and 29% of the calves, respectively from Sel-Plex®, Na-Se and control groups, suffered from diarrhoea during the 15 first days of life. Results appeared to be not significant regarding the disease in the dams.

At 0.5 ppm Se, ADG was higher (almost 30%) in calves born from Sel-Plex® group's cows than Na-Se group ($p=0.06$). There is no difference between Na-Se 0.5 ppm and control group.

At the same dosage, selenomethionine leads to better Se status in both dams and their calves than Na-Se. Concerning health and ADG in calves, selenomethionine also tends to result in better performances.