THE EFFECT OF ORGANIC AND INORGANIC SELENIUM SUPPLEMENTATION ON SELENIUM CONCENTRATIONS IN COLOSTRUM AND BLOOD OF BEEF HEIFERS AND THEIR CALVES

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The aim was to monitor the effect of supplementation of selenium from organic and inorganic sources on Se levels in late pregnancy AA heifers from 10 to 5 days before calving, on calving day, and on Se levels in colostrum and blood of calves before first colostrum meal and on 3-5 days of life, and Ig levels in colostrum and serum of 3-5 days old calves.

18 pregnant heifers were allocated into 3 treatments (A, B, C), 2 months before due date. All the heifers were fed the same basal diet based on clover-grass silage (8kg), meadow hey (4 kg), straw (ad libitum) and concentrate (1 kg). The analysed Se content in the basal diet was 0.12 mg/kg DM. In A and B treatments, concentrate was supplemented with Se source to provide 2 mg/cow/day of organic (Se yeast) or inorganic (sodium selenite) Se, respectively. The C heifers did not receive additional Se (negative control).

Blood and colostrum Se was analysed by AAS with e SOLAR 939 from UNICAM, after being mineralized by microwave digestion with MILESTONE 1200.

Results: The initial whole blood Se levels in all the pregnant heifers were suboptimal: 58.4 ug/l, 60.1 ug/l and 56.3 ug/l in the groups A, B and C, respectively. At 5-10 days prepartum, blood Se levels were increased significantly in A and B, i.e. 96.8 ug/l and 82.5 ug/l, respectively. There was not a significant change in blood Se (61.7 ug/l). On the calving day, blood Se levels in mothers were slightly decreased in all the groups (90.6 ug/l, 77.5 and 58.3 ug/l in A, B and C, respectively). Blood Se levels in calves before the first colostrum meal were 98.6 ug/l, 82.4 ug/l and 64.5 ug/l in A, B and C, respectively. The differences were significant. Serum Ig levels in calves from 3-5 days of age were 12.8 g/l, 10.3 g/l and only 8.6 g/l for A, B and C, respectively.

Conclusion: The organic and inorganic Se supplementation to heifers in the last 2 months of pregnancy significantly increased blood Se levels before the calving and at calving, as well as colostrum Se concentrations. Se from organic source showed a greater favourable effect. The Se supplementation increased significantly the colostral immunity of calves. Ig levels in calves born from mothers supplemented with organic Se were higher than both in the Control calves and in the calves from the cows supplemented with inorganic Se source.

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