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Testing natural alternatives to iron injection for organic piglets

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So far, the most common and efficient iron supply to prevent neonatal anemia in piglets has been the injection of iron dextran or gleptoferron. This treatment is problematic because the use of chemically-synthesized allopathic drugs is strictly limited in organic farms. Based on the observation that piglets raised outdoors seldom develop anaemia, we hypothesized that piglets satisfy their needs in iron by ingesting soil from their environment. We compared the efficiency of a 100-mg iron dextran intramuscular injection (Dex, 8 litters, n=98 piglets) at 5 days of age (d5), with daily ad libitum supply of dried soil (Soil, 8 litters, n=101) or dried peat-like river mud (Peat, 8 litters, n=102) from day 5 to weaning on d49. Pigs were raised according to organic pig farming rules. Blood was collected on 3 males and 3 females per litter on d5, 21, 42, 50 and 70. A severe digestive E. coli episode affected piglets during the experiment: litter mortality rate between d5 and d70 did not differ between groups (24%, P>0.1). Body weight was similar (P>0.1) in the three groups on d5 (1.89 ± 0.02 kg), d21 (5.19 ± 0.07kg), d42 (10.0 ± 0.2 kg), d50 (11.8 ± 0.2 kg) and d70 (24.1 ± 0.4 kg). Blood haemoglobin concentration (Hb) was similar in all groups at d5, weaning and d70 (7.8, 10.1 and 10.0 ± 0.1 g/L). However, Hb was greater in Peat and Dex groups (10.4 and 9.9 ± 0.4 g/L) than in the Soil group (7.8 ± 0.4 g/L, P<0.01) on d21, and greater in the Peat group (11.3 ± 0.4 g/L) than in Dex and Soil groups (9.2 ± and 8.9 ± 0.3 g/L, P<0.01) on d42. Mean globular volume (MCV) of erythrocytes was stable in time in the Peat group (55.0 ± 0.2 fl). In comparison to the Peat group, MCV dropped in the Soil group on d21 and d42 (45 and 45 ± 1 fl, P <0.001), and in the Dex group on d42 (46 ± 1 fl, P<0.01). Soil and Dex groups had returned to values similar to Peat group by d70 (P<0.1). To conclude, the supply of soil was not able to ensure a satisfactory level of iron in the piglets whereas peat-like river mud seems satisfactory. The daily supply of peat-like river mud was more efficient than the 100-mg iron injection beyond 21d.