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A UK farm study to evaluate productivity parameters following routine iron injection of outdoor piglets

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Introduction

The vast majority of indoor units administer supplementary iron to piglets in the first few days of life. This is done to prevent iron deficiency anaemia from occurring, which is characterised by hypochromic/ microcytic anaemia. Supplementary iron is usually provided in the form of 200mg of iron as iron dextran delivered by intramuscular injection. In contrast, it is quite rare for outdoor born piglets to receive routine iron, it being widely believed that access to the outdoor environment allows piglets sufficient soil intake to prevent iron deficiency. The aim of this study was to evaluate possible differences in productivity parameters arising from an intervention using routine iron injection of neonatal piglets on a large commercial outdoor unit in Southern England. If differences in productivity parameters were seen then the study was to be extended to include a comparison of haematological parameters between treated and untreated piglets.

Materials and Methods

The unit comprised an 1800 sow outdoor herd which was split into two 900 sow units (Units 1 and 2). Both units had the same management, feed, genetics, average weaning age (26 days) and soil type. Farrowed sows were group managed in paddocks containing 12 uninsulated arcs, with fenders attached. During the summer wallows were established in all farrowing paddocks. Prior to the start of this study iron injection of piglets was not practised. The treatment consisted of 200mg of iron as iron dextran (1ml of Uniferon- Pharmocosmos). In the first instance Unit 1 was allocated to treatment and Unit 2 to control. For a period of 4 weeks (Batch 1) all piglets were treated on Site 1 at ~48 hours old. Thereafter, treatment was switched to Site 2 for a period of 4 weeks with Site 1 acting as control (Batch 2). This format was continued for six batches. A total of 9897 piglets were born alive in litters to be iron treated and, 9365 piglets were untreated. Recorded parameters included number born alive, piglet mortality, number weaned, number 'rolled over' (deemed too small and back-fostered) and average weaning weight.

Results

Mean weaning weight was 7.37kg for the iron group and 7.11kg for the control group over the 6 month study. This difference was highly statistically significant. There were no significant differences between the two groups for

number weaned per sow, number 'rolled over' or piglet mortality. A strong seasonal effect was noted with batches born in the summer showing significantly poorer results for weaning weight and number weaned per sow. The effect of iron treatment on weaning weight was more pronounced in the first three batches of the trial (piglets born February, March and April). In February the difference between the two groups was just under 0.6kg. Blood parameters for the two groups showed significant differences for haemoglobin, MCH, MCV, PCV and RBC count.

Discussion

The overall results suggest a significant benefit from routine iron injection for weaning weight but no benefit for the other parameters measured. Changes in the behaviour of both sows and piglets are suspected to be responsible for the apparent seasonal effects noted. During colder weather sows and piglets spend longer inside their arcs rather than outside. In warmer weather sows, given the option, spend long periods of time wallowing and hence their skin surface is often covered in adherent soil. When these sows return to suckle their litters, the piglets obviously consume relatively large amounts of soil and their iron intake is therefore higher. The improvement in weaning weight would appear to be mediated through improved blood parameters in iron treated piglets. Improved weaning weight is strongly correlated with post weaning performance and on this unit iron treatment was estimated to provide an ROI in excess of 10:1.

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