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Several alternative methods are available to the pig producer of administering iron to piglets to prevent anaemia. These include self-help systems and dosage either orally or parenterally. Some of these alternative systems were evaluated in a controlled experiment.

A further experiment was carried out to evaluate the effects of dosage level (100 or 200 mg iron) and timing of intramuscular injection (3 or 7 days of age)

#### Experiment 1

The following methods of administering iron to piglets were evaluated:

1. Control (no supplementary iron).
2. Femax System. This is a self help system developed in Norway (Peter Moller A/S). The concentrated Femax liquid is an acidified electrolyte solution containing iron in readily available form (as iron glutamate). A 4 per cent solution of concentrated Femax liquid is made up by adding water. This dilute solution is held in a 5 litre Plastic Container from which a polythene delivery pipe carries the liquid to a stainless steel drinking bowl activated by the piglets. This dispenser was placed adjacent to the creep area and Femax was made available throughout lactation from Day 1.
3. 1 ml of Gleptosil Injectable iron (Cleptoferron; 200 mg Fe/ml. Fisons Ltd.) injected into the ham on Day 1 of life.
4. 2 ml of Ferrofax Oral Iron (iron Galacton; 100 mg Fe/ml C.Vet.Ltd.) was given orally on Day 1 of life.
5. 2 ml of Ferrofax Injectable iron (iron Galacton; 100 mg Fe/ml C. Vet.Ltd.) was given by intramuscular injection into the ham on Day 3 of life.
6. 2 ml of Ferrofax Injectable iron injected into the ham on Day 7 of life.

A total of 17 litters per treatment were involved and an equivalent number of control litters receiving no supplementary iron were also evaluated. Thus, a total of 102 litters were involved in the experiment. Litters were weaned between 14 and 21 days of age (mean 17 days). Individual pig weights were recorded at birth, 4 and 6 weeks of age, while blood samples were taken for haematological examination at 10 days and 4 weeks of age.

For treatments 1 to 6 above, mean number of piglets at the start was 9.68, 9.35, 9.43, 9.55, 9.60 and 9.50 respectively. Total deaths to 6 weeks per litter were 0.48, 0.47, 0.36, 0.59, 0.38 and 0.18 for treatments 1 to 6 respectively. These means were not significantly different from each other.

Mean piglet daily weight gain (g) to 6 weeks of age was 157.6, 185.2, 177.8, 184.4, 179.0 and 186.0 for treatments 1 to 6 respectively. While differences between iron treatments were not significant, weight gain of control pigs was significantly less ( $P < 0.05$ ) than that of pigs receiving iron supplementation. Haemoglobin level (g/d l) at 4 weeks of age was 7.84, 10.74, 11.74, 9.93 and 10.88 and 10.88 respectively for treatments 1 to 6, control pigs having significantly lower levels than pigs from any of the iron supplemented treatments.

Thus, there were no significant differences between the various iron treatments

#### Experiment 2

The effects of either 100 or 200 ml of Leodex (Iron Dextran; 100 mg Fe per ml; Leo Laboratories Ltd) given by intramuscular injection at either 3 or 7 days of age was evaluated in an experiment with 20 litters per treatment. The work was carried out on a commercial farm in which weaning took place at 4 weeks of age. For treatments A (3 days; 200 ml), B (3 days; 100 ml), C (7 days; 200 ml) and D (7 days;

100 ml) mortality to 6 weeks of age was 14.7, 11.3, 10.8 and 10.2 per cent respectively, mean piglet gain to 6 weeks (kg) was 9.04, 9.09, 8.87 and 9.30 respectively while Haemoglobin level at 14 days (g/d l) was 10.74, 10.50, 10.64 and 10.03 respectively. None of the differences between treatments were statistically significant.

#### Discussion

Alternative systems of administering iron have been developed to facilitate pig management in different situations. Oral dosing and injection soon after birth were developed to make it possible to administer iron at this stage when the piglet was being handled in any case for such practices as teeth clipping. The self-help Femax system was developed to avoid the need for handling the pig to administer iron. This latter system incorporates an acidified solution of electrolyte along with iron and has the potential for alleviating an outbreak of scouring in the litter.

No significant differences in piglet mortality, growth to 6 weeks of age or in haemoglobin level at 4 weeks were detected among the methods evaluated. All methods appeared to be effective in preventing piglet anaemia. Thus, the treatment selected for use in practice should be based on the ease of administering the treatment, its cost and on the personal preferences of the pig producer and his staff.

Regarding the effects of dosage level and timing of treatment, no significant differences were detectable in haemoglobin level at 14 days or in mortality and piglet weight gain to 6 weeks of age. All treatments appeared to be effective in preventing anaemia. Thus, it appeared under the conditions of this experiment that a 100 mg dose of iron was quite adequate. It appeared also from this experiment that there was no need to administer iron until 7 days of age. Delaying iron administration until this stage is likely to be advantageous in the presence of neonatal infections. The reticuloendothelial system of a piglet suffering from enteritis in the first few days of life is likely to be embarrassed by an injection of an iron product at around 3 days of age.

#### Selected References

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