EFFECT OF DIFFERENT HOUSING SYSTEMS ON THE SERUM IRON AND HAEMOGLOBIN CONTENT IN LARGE WHITE YORKSHIRE PIGS *

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Abstract

A study was conducted at Livestock Research Station, Kattupakkam to assess the effect of different housing systems viz., intensive, semi-intensive and extensive systems on the serum iron and haemoglobin content in Large White Yorkshire pigs. The pigs reared under extensive system and semi-intensive system had significantly (P<0.05) higher serum iron and hemoglobin content (P<0.01) than those reared under intensive system. The results revealed that the extensive and semi-intensive system of housing of pigs had an influence on serum iron and haemoglobin content due to exposure of pigs to rooting in the soil.

Key words: *Housing System, serum iron, haemoglobin, LWY pigs*

Farmers are not fully aware of the influence of pig housing on economic returns from a piggery unit. A growing interest has been shown in alternative pig production systems because of the low capital cost of outdoor rearing. The outdoor reared pigs had a higher average daily gain than the indoor reared pigs (Gentry *et al.*,2002) and moreover pigs maintained under extensive system acquire iron from the soil by their rooting behaviour. This will help preventing piglet mortality due to piglet anemia. On the other hand, intensively reared pigs are prone to deficiency of iron and other essential minerals which are found in the soil. This is compensated by supplementation, either through feed or in the form of injection. However, the impact of rearing systems on the iron level in serum is not documented for the climatic region under study. This paper throws light on the effect of different housing systems on the serum iron and haemoglobin levels in Large White Yorkshire (LWY) pigs.

Materials and Methods

Twenty-four weaned LWY piglets aged 56 days were randomly selected based on body weight and divided into three treatment groups of eight piglets each. The male piglets were castrated after selection. The first group was reared under intensive system of housing with concrete floor, the second group was reared under semi-intensive system of housing with concrete floor and the third group was reared under Extensive system with mud floor. Animals in all the three groups were given a floor space of 10 sq. ft per piglet as per the ICAR standards. All the three treatment groups were provided a standard grower pig feed in the form of dry mash with 18 per cent crude protein and the ration contained a calculated level of 2640 kcal digestible energy. Serum samples were collected at the time of slaughter for the estimation of haemoglobin and iron using standard procedures by Atomic Absorption Spectroscopy (Perkin –Elmer, 1994) and the collected data were statistically analysed (Snedecor and Cochran, 1994).

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Results and Discussion

As furnished in the table, it was observed that the pigs reared under semi-intensive (1.99 ± 0.19 ppm) and extensive (2.03 ± 0.16 ppm) housing systems had significantly higher (P<0.05) levels of iron than those reared under intensive housing system (1.36 ± 0.14 ppm). The extensively (12.08 ± 0.46 g/dl) and semi-intensively reared pigs (11.09 ± 0.18 g/dl) had significantly higher haemoglobin level (P<0.01) as compared to intensive housing system (10.74 ± 0.46). The effect of rearing systems on the serum iron and haemoglobin content could be due to the free access of pigs to soil, plants, bedding and faeces. The indoor reared pigs had limited access to faeces and no access at all to soil (Kleinbeck and McGlone, 1999). It was also established that supplemental iron was not necessary for pigs reared outdoors as pointed out by Kleinbeck and McGlone (1999).

Table. Mean ± SE of serum iron and haemoglobin content in Large White Yorkshire pigs reared under different housing systems

Housing systems	Haemoglobin (g/dl)	Iron (ppm)
Intensive system	10.74 ^{b} ± 0.46	1.36 ^{b} ± 0.14
Semi-intensive system	11.09^{a} ± 0.18	1.99^{a} ± 0.19
Extensive system	12.08^{a} ± 0.46	2.03^{a} ± 0.16
'F' value	6.765**	5.41*

*- Significant at five per cent level (P<0.05)
**- Significant at one per cent level (P<0.01)
Values bearing different superscript in a column differ significantly.

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