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Effect of different level of iron on performance of feed intake and feed consumption ratio in commercial broiler

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Abstract
The purpose of this study was to investigate the effects of iron requirement in growth performance in commercial broiler. A total forty five day old broiler chick of same hatch procured and randomly divided in to three groups. Battery type of cages system consists of three chickens in each to provide recommended floor space 0.75 ft in cages per broiler. T_0 control (ration with out of supplement) T_1 ration supplemented with 60mg iron, T_2 ration supplemented with 80 mg iron T_3 ration supplemented with 100mg iron T_4 ration supplemented with 120mg iron. The mean body weight of chicks in different treatments T_0, T_1, T_2, T_3, and T_4 were 48.0gm, 46.0gm, 45.33gm, 44.00gm, and 42.67gm respectively and they were non-significant effect. The mean feed intake of chicks during four week of age per broiler were T_0 601.33gm, T_1 600.03gm, T_2 590.00, T_3 540.03gm and T_4 526.00gm.and the mean feed consumption ratio of broiler during the five week of age were T_0 2098.93gm, T_1 2090.38gm, T_2 2072.35gm, T_3 1985.03gm and T_4 1400.32gm respectively they were non-significantly effect to each other.

Keywords: Iron, feed intake, feed consumption ratio, commercial broiler

Introduction
Iron (Fe) is an essential trace mineral for all living organisms, and it is required for several metabolic processes, including oxygen and electron transport as well as DNA synthesis (Bothwell *et al*., 1979) [1]. Iron is a mineral that our bodies need for many functions. For example, iron is part of hemoglobin, a protein which carries oxygen from our lungs throughout our bodies. It helps our muscles store and use oxygen. Iron is also part of many other proteins and enzymes.

This element is widely spread in nature and is present in all ingredients. Used in commercial poultry diets (NRC, 1994). Absorption and transport of dietary Fe across the intestinal mucosa occurs either from inorganic or heme Fe in processes that are highly dependent on Fe status (Conrad *et al*., 2000) [2]. If tissue Fe response to dietary Fe is linear, this method may be applicable to bioavailability assays of supplemental Fe sources. Among body tissues, liver and spleen usually carry the greatest Fe concentrations, followed by kidney, heart, skeletal muscle, and brain (Morris, 1987) [5].

The fact that Fe absorption decreases with age (Forbes and Reina, 1972) [3] suggests that age may affect the sensitivity of this bioassay based on tissue accumulation. High dietary concentrations of soluble Fe have been reported to depress feed intake and cause death in young animals, especially prior to 5 d of age (van Ravenswaay, 1986; McGowen *et al*, 1992; Spears *et al*, 1992) [8, 9]. Ferrous (Iron) essentially needed to trace minerals required for development of body tissues and required for many proteins and enzymes. The commonly available form for iron is Ferrous Sulphate. Ferrous Sulphate is an iron salt controlled by mouth to delight or stop iron-shortage anemia. Similar preparations used to treat anemia include F*errous Fumarat* and F*errous Succinate*. It is not only an essential mineral but also parts of hemoglobin the oxygen-booming element of the blood. Iron-deficient people tired simply in fragment as their physiques are ravenous for oxygen. Iron is also major fragment of myoglobin, which supports muscle cells hoard oxygen. Anemia in chickens could be corrected with the addition of Fe to a purified basal diet. The need for both Fe and Cu in animal diet has been clearly established. The Fe functions directly for hemoglobin formation. The study was carried out to examine the effect of feed supplementation with ferrous sulphate (Iron) on the growth of broiler.

Material and Method

A total forty five day old broiler chick of same hatch procured and randomly divided in to three groups and housed in battery type of cages consisting of three chickens in each to provide recommended floor space 0.75 ft in cages per broiler. T_0 control (ration with out of supplement) T_1 ration supplemented with 60mg iron, T_2 ration supplemented with 80 mg iron T_3 ration supplemented with 100mg iron T_4 ration supplemented with 120mg iron The birds were reared in battery type cages under standard management practices from day old to five weeks of age. Iron was supplemented as per dietary regime of treatments. Broiler starter ration containing CP: 22% and ME: 2900K.Cal/kg feed was fed up to three weeks and broiler finisher ration contain CP: 19% AND me: 3000k. Cal/K. feed up to five weeks. The ration was fed ad libitum to the birds. Initial weight of each chick was recorded on arrival and then weekly to obtain the growth rate. The feed consumption was also recorded weekly to determine the feed conversion ratio. The data on various parameters were recorded, tabulated, and statistically and analysed using analysis of variances (ANOVA) techniques as per Snedecar and Cocharan (1994) [7].

Result Discussion

Average weekly feed intake of broilers

The data regarding feed intake of broiler of different treatments were observed at one week of age the highest feed intake of broiler was recorded in T_1 (157.30g) and followed by T_3 (150.00g), T_0 (140.00g), T_2 (138.03g) and T_4 (132.00g). At two week of age the highest feed intake of broilers was recorded in T_1 (324.07g) followed by T_0 (323.33g), T_3 (310.00g) T_2 (295.33g) T_4 (276.00g). At three week of age the highest feed intake of broilers was recorded in T_4 (447.33g) fallowed by T_1 (444.63g), T_3 (444.60g), T_0 (422.30g) and T_2 (421.30g). At four weeks of age the highest feed intake of broilers was recorded in T_4 (550.00g) fallowed by T_3 (523.33g), T_2 (501.00g), T_1 (499.97g) and T_0 (488.60g). At five week of age the highest feed intake of broilers was recorded in T_3 (601.33g) followed by, T_4 (600.03g), T_2 (590.00g) T_0 (540.03g) and T_1 (526.00g). The irrespective of treatments the mean feed intake of broilers in first, second, third, fourth and fifth week of age were 143.67g, 306.17g, 436.63g, 513.38g and 572.48g.Irrespective of week the mean feed intake of broilers in T_0,T_1, T_2, $T_3$and T_4 was 382.85, 389.13, 390.39, 401.09 and 405.86g respectively. Form the perusal of data on weekly feed intake of broilers contained. It may be noted that feed intake of broiler, irrespective of treatments at one, two, three, four and five weeks of age was 143.67, 306.17, 436.63, 513.38 and 572.48g respectively. And the differences in there were significant, indicating thereby a significant effect of age on the feed intake of broiler in all treatment the results were expected, because under normal phenomenon. The increase in feed intake with increase age is what are world expected with increase of age. When treatment were feed intake was recorded, the mean highest feed intake was significant in broiler of T_3 (405.36g) followed by (401.09g) T_1 (390.39 g) T_2 (309.13g) and T_0 (382.85g). And the difference min this volume was found no significant. This indicate that supplementation of iron did not influence the feed intake of broiler. However feed intake was recorded higher in treatment groups compared of control.

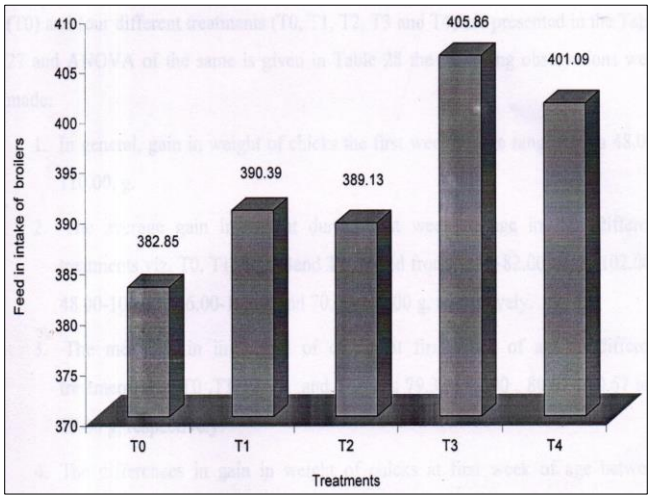

Fig 1: Average weekly feed intake of broilers on diets supplemented with different levels of Iron.

Average weekly FCR of broilers of different treatments gram feed per kg of gain in weight

The data recording the feed conversion ratio of chicks randomly distributed into control (T_0) and four different treatments (T_0, T_1, T_2, T_3 and T_4) are presented in the table 49 and ANOVA of the same in given in table 50. The following observation was made.

At one week of age the highest FCR per broiler was recorded in T_0 (1765.07g) followed by T_2 (1753.83g) T_1 (1712.58g), T_3 (1656.81g) and T_4 (1515.46g) At two week of age highest gain in weight per broiler was recorded in T_1 (190.67g) fallowed by T_3 (184.00g) T_0 (178.00g), T_4 (174.67g) and T_2 (162.00g). At three week of age the highest gain in weight per broiler was recorded in T_1 (312.67g) fallowed by, T_2 (262.67g), T_4 (262.67g), T_3 (251.33g) and T_0 (249.33g). At four week of age the highest gain in weight per of broiler was recorded in T_2 (310.00g) fallowed by T_1 (289.33g), T_4 (286.67g) T_3 (284.67g) and T_0 (268.67g). At five week of age the highest gain in weight per broiler was recorded in T_2 (307.33g) fallowed by T_3 (290.00g) T_4 (286.00g) T_0 (256.67g) and T_1 (254.00g). The irrespective of treatments the mean feed intake of broilers in first, second, third, four band fifth week of age was T_0, T_1, T_2, T_3, and T_4 was and 86.33, 178.27, 267.53, 288.67 and 283.27g respectively. Irrespective of week the mean feed intake of broiler in T_0, T_1, T_2, T_3 and T_4 was 206.40, 218.40, 219.87, 227.73 and 228.67g respectively. The differences in the average gain in weight per broiler, both due to the treatment were non-significant.

For the perusal of data on weekly gain in weight of chick per broiler, contained in table 17, it may be noted that gain in weight per broiler, irrespective of treatments at first, second, third, fourth and fifth week of age was 178.27g, 267.53g, 283.27g, 288.67g and 86.33g. Respectively and the differences in these were non-significant indicating thereby significant effect of age on the gain in weight of broilers in all treatment the results were expected because under normal phenomenon. With increase of age, feed intake in also increase and this is what are world expected. When treatment were feed intake was recorded the weight feed intake was recorded the highest feed intake was observed T_3 (228.67) followed by T_1 (227.73g) T_2 (219.87g) T_4 (218.40g) and T_0 (206.40g). However there values of feed intake did not differ significantly being at par.

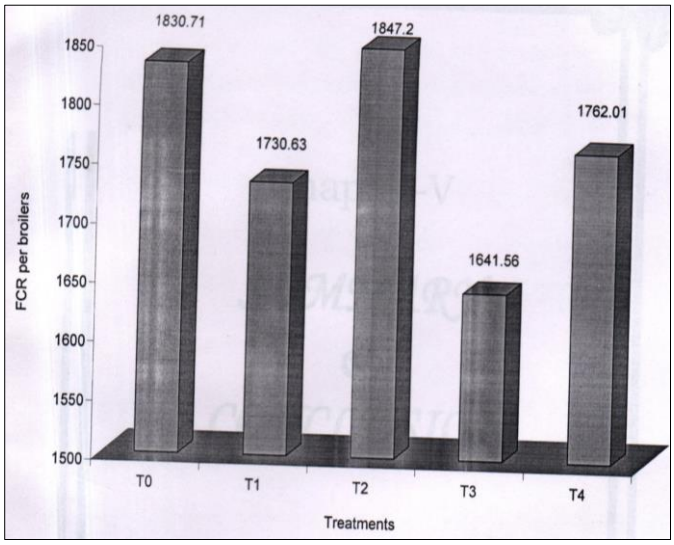

Fig 2: Average weekly feed conversion ratio of broilers on diets supplemented with different levels of Iron.

Conclusion

The mean feed intake of chicks during four week of age per broiler in T_0, T_1, T_2, T_3 and T_4 601.33, 600.03, 590.00, 540.03 and 526.00g, in the differences in feed intake treatments were non-significant. Mean feed conversion ratio of broilers during the five weeks of age in T_0, T_1, T_2, T_3 and T_4 2098.93, 2090.38, 2072.35, 1985.03 and 1400.32 respectively and the differences in feed intake treatment were non-significant. It may be concluded that there was low feed intake was found in T_4 treatment (120mg/kg) but highest feed intake was observed in T_0 (control). The higher feed conversion ratio was found in T_0 (control) and lowest was found in T_4 (120mg/kg).

Reference

1. Bothwell TH, Charlton RW, Cook JD, Finch CA. Iron metabolism in man. Blackwell Scientific, Oxford, 1979, 7-81.
2. Conrad ME, Umbreit JN, Moore EG, Hainsworth LN, Porubcin M, Simovich MJ *et al*. Separate pathways for cellular uptake of ferric and Ferrous iron. Am. J. Physiol. Gastrointestinal. Liver Physiol. 2000; 279:767-774.
3. Forbes GB, Reina JC. Effect of age on gastrointestinal absorption (Fe, Sr, Pb) in the rat. J Nutr. 1972; 102:647-652.
4. McGowan AK, Crenshaw TD, Benevenga NJ. Potential of oral iron to maintain blood iron status in neonatal pigs. J Anim. Sci. 1992; 70(1):73.
5. Morris ER. Iron. in: Trace Elements in Human and Animal Nutrition. 5th ed. W. Mertz, ed. Academic Press, Inc., New York, NY. 1987; 1:79-142
6. National Research Council. 1994. Nutrient requirements of poultry. 9th rev. ed. Natl. Acad. Press, Washington, DC.
7. Snedecar GW, Cocharan WG. Statistical Methods. 6th Edition, Oxford and I. B. H. Punlishing Co. Calcutta, 1968.
8. Spears JW, Schoenherr WD, Kegley EB, Flowers WL, Alhusen HD. Efficacy of iron methionine as a source of iron for nursing pigs. J Anim. Sci. 1992; 70(1):243.
9. Van Ravens way RO. Effect of Dietary Iron on Tissue Mineral Composition as a measure of Bioavailability of Different Iron Sources. M.S. thesis, University of Florida, Gainesville, FL, 1986.