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Effect of First Feed Intake Time on Broiler Performance and Carcass Traits

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Abstract

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Influence of first feed intake time on broiler performance parameters and carcass traits have been evaluated using 225 newly hatched male chicks (Ross), randomly divided into three treatment groups and post-hatch initial feeding times as 0h, 18h and 36h. During the first four weeks, body weight gain of delayed fed groups were lower than control group. However, by the end of the 42 d experimental period body weight gain, feed conversion ratio, survival rate and carcass trait parameters were not different (P>0.05) among the groups. Performance deficiencies caused by delayed feeding disappeared in subsequent days suggesting that this process had no detrimental effect on broiler performance.

Key words: Broiler, time to first feed, performance.

Introduction

During the brooding period, the chick is highly dependent on its environment. The time from hatching to the onset of feeding is a critical period in the development of hatching poultry. During this period, the birds utilize their energy reserves to meet the high demands for glucose. A delay of 24-72h in onset of feeding is quite common in the poultry industry due to variation in hatching time and hatchery treatments (Shira *et al.*, 2005).

Development and growth of the newly hatched chick relies on immediate access to feed and water. Although a lot of articles (Tako *et al.*, 2004; Uni *et al.*, 2005) addressed the importance of early feeding as *in ovo* or after hatching in poultry production, it was reported in some papers that delayed feeding would be useful to prevent the birds from some metabolic disorders such as leg weakness (Petek *et al.*, 2005). Limited research has been done to evaluate the effects of early or late access to first feeding

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on growth and carcass traits (Juul-Madsen *et al.*, 2004).

In the present study, extended time to first feeding and its possible influences on broilers performance characteristics and carcass traits have been evaluated.

Materials and Methods

The experimental procedures employed in this study were in accordance with the principles and guidelines set out by the Committee of Faculty of Veterinary Medicine on Animal Care. Two hundred twenty five day old male chicks (Ross PM_3) were randomly and equally divided into three treatment groups. Each treatment group was then divided into three replicates. Following hatching, the chicks were placed on 1x2 m floor pens and allowed access to feed at 0h (control), 18h (E1) or 36h (E2) as per treatment.

Newly hatched chicks were reared in the same environmental conditions in a deep litter pen following standard practices. The birds were killed humanely by decapitation (Anonymous, 2003) on 42nd day of age and carcass and offal weights were recorded.

Mortality was recorded on group basis. Carcass and offal weights were expressed as per cent of live body weight. Data were analyzed using ANOVA (Snedecor and Cochran, 1989) procedure of SPSS® computer software 13.00 (SPSS Inc., 2004).

Results and Discussion

Growth rate of delayed feeding group chicks exhibited certain extent of depression during the first 4 weeks as compared to control group ($P<0.05$). This difference disappeared towards the end of the 42 weeks experimental period. This could be explained by dehydration caused by delayed feeding resulting in reduced broiler performance as reported by several researchers (Bigot *et al.*, 2003; Careghi *et al.*, 2005). Yolk uptake by the chicks, during this period, may be partly different due to the differences in the levels of intestinal development and utilization of nutrients (Noy and Sklan, 1999). However, towards the end of experiment body weight of birds was comparable and there was no significant difference among the groups (Fig. 1). These findings are in good agreement with those of Bigot *et al.* (2003), who reported no significant difference in body weight of chicks that were subjected to 2d delayed feeding after hatch. Contrary to our findings, Careghi *et al.* (2005) reported about 15% decrease in body weight when the chicks were subjected to 2d delayed feeding. In our study, there was no significant difference when the groups were compared for feed conversion ratio (Table 1). Among the other tested parameters such as survival rate and carcass, liver, heart, gizzard and abdominal fat weights, the groups exhibited similar profiles (Table 1). Meanwhile Saki (2005) reported that the weight of liver and heart of non-fasting group was significantly greater than 12 and 24h fasting groups.

Table 1
Feed conversion ratio, survival rate and carcass weight of chicks

Parameter	Control	Delayed feed 18 h	36 h
Feed conversion ratio	1.76	1.75	1.70
Survival rate, %	92.00	94.66	90.66
Carcass, %	75.86	74.05	74.90
Liver, %	2.54	2.50	2.39
Heart, %	0.77	0.79	0.72
Gizzard, %	1.28	1.16	1.21
Abdominal fat, %	1.20	1.18	1.16

The effects of delayed feeding on broiler performance have been attributed to different factors. Bigot *et al.* (2003) and Petek *et al.* (2005) have shown that feed deprivation delayed intestinal growth and development in poults. Thus, fasting at longer times may

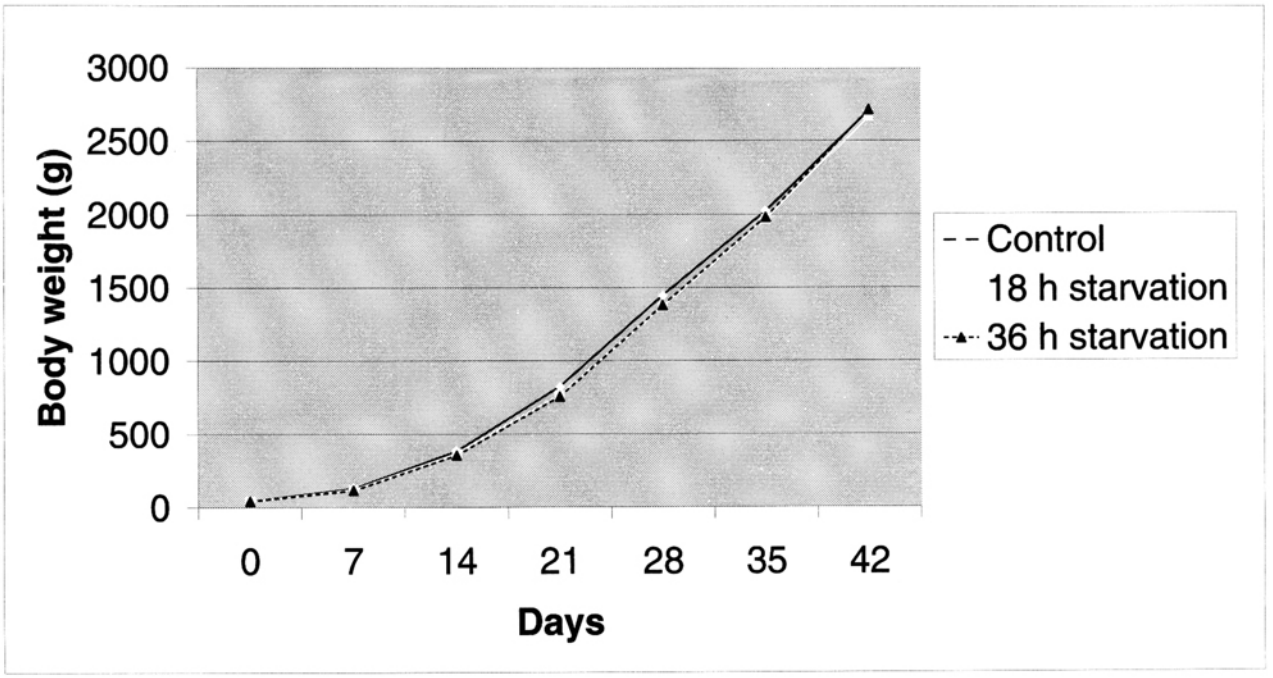

Fig. 1. Cumulative body weight of birds (g)

negatively influence feed conversion ratio depending upon the inappropriate development of intestinal segment (Geyra *et al.* (2001).

Data from this study suggested that delayed feeding upto 36h had no detrimental effect on broiler performance and carcass traits.

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मेटिन पेटेक, एर्बग यील्माज, रेसेप सीबिक। ब्रायलर के निष्पादन और वधज गुणों पर प्रथम आहार भक्षण की आयु का प्रभाव।

ब्रायलर में प्रथम आहार भक्षण की आयु का उनके निष्पादन और वधज गुणों पर प्रभाव का मूल्यांकन किया गया। नये स्फुटित 225 नर चूजों (रॉस) को याद्च्छिक रीति से तीन सम वर्गों में वितरित करके उनके आहार प्रारंभ करने के समय स्फुटन के बाद क्रमश: 0, 18 और 36 घंटे रखा गया। प्रथम चार सप्ताह में देर से आहार भक्षण प्रारंभ करने वाले चूजों का शरीर भार नियंत्रक की तुलना में कम था। वैसे 42 दिन पर शरीर भार वृद्धि, आहार परिवर्तन अनुपात, जीविता दर और वधज गुणों में उपचार का सार्थक प्रभाव नहीं था। विलंबित प्राशन से उत्पन्न निष्पादन की कमियां समय बीतने के साथ क्रमश: समाप्त हो गयीं और इससे यह निष्कर्ष निकलता है कि प्राशन प्रारंभ करने में 36 घंटे तक बिलम्ब का ब्रायलर के निष्पादन पर हानिकारक प्रभाव नहीं होता है।