

The effects of different floor materials on the growth performance and carcass traits of Mule duck ⁽¹⁾

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Abstract

The purpose of this experiment was to investigate the effects of different floor materials on the growth performance, carcass traits, main feather length development and footpad damage of the Mule duck to evaluate the feasibility of the indoor production model of mule duck. 240 three-way crossbred mule ducks were raised in the brooding house from hatched to 3 weeks of age. After 3 weeks of age, the Mule ducks were divided into 4 treatment groups, with the floor materials being stainless steel mesh, plastic wooden slats and rubber anti-slip and three replicates per treatment, 20 ducks per replicate. Diet was isocaloric and isonitrogenous in each group. The individual body weight and the feed consumption of each group were determined to calculate the growth performance such as feed intake, body weight gain, feed conversion ratio, and the development of the main feather length, damage of the footpad were also determined. When ducks were at 3, 7, 10 and 12 weeks of age, six ducks were selected from each treatment and sacrificed at 12 weeks of age for carcass traits determination. The results showed that the average temperature and relative humidity in the duck house were 31.4°C and 65.5%. In terms of body weight, the body weight of each treatment was ranged from 2,663-2,875 g at 12 weeks of age. Yet the results of the wood slat floor and stainless steel mesh floor treatments were 2,875 g and 2,862 g which were significantly higher than 2,663 g of the rubber anti-slip floor treatment ($P < 0.05$). The damage score of footpad indicated that stainless steel mesh floor treatment was 1.80 which were significantly better than plastic floor (3.25), wooden slats floor (2.67) and rubber anti-slip floor (3.58) treatments at 12 weeks of age ($P < 0.05$). In terms of body weight gain, the body weight gain of ducks from 3 to 7 weeks of age in each treatment were ranged from 1,348 to 1,496 g. The body weight gain of the wood slat floor group was 1,496 g which was better than that of the other three groups; However, the body weight gain of each treatment were ranged from 2,328-2,529 g at 3-12 weeks of age and there was no significant difference between the treatments. The average daily feed consumption of each treatment were ranged from 137 to 140 g at 3-12 weeks of age, with no significant differences between the treatments. The feed conversion ratio of each treatment were ranged from 3.45 to 3.78 at 3-12 weeks of age and there was no significant difference between the groups, but the feed conversion ratio of the wood slat floor group was 3.45 which was showed better trend than the other three groups. With regard to the length of the 8th primary feather at 12 weeks of age, the length of the main feathers of each treatment group were ranged from 19.0 to 21.1 cm, and there was no significant difference between the treatments. The dressing percentage of each treatment were ranged from 80.3 to 82.7% and there was no significant difference between the treatments. The weight of breast meat in each treatment were ranged from 412 to 504 g, and there was no significant difference between the treatments. According to the results of this experiment, it is recommended to use stainless steel mesh floor for indoor duck house if ducks body weight, feed conversion rate and footpad damage are taken into concern simultaneously.

Key words: Floor material, Mule duck, Growth performance, Carcass traits.

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