

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

INFLUENCE OF PEN HOUSING WITH LITTER ON GROWTH PERFORMANCE OF RABBITS

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Resumo: Objetivou-se avaliar o desempenho produtivo de coelhos criados, durante a fase de crescimento, em piso com cama em relação à gaiola convencional. Aos 35 dias, 54 coelhos machos e fêmeas mestiços (Nova Zelândia Branco x Botucatu) foram alojados aleatoriamente em piso com cama (6 boxes; 6 coelhos/box; 2,3 coelhos/m²) ou em gaiolas (6 gaiolas; 3 coelhos/gaiola; 8,3 coelhos/m²) e mantidos até a idade de abate, aos 77 dias. Os coelhos alojados em gaiola apresentaram maior peso vivo aos 56 dias (1714 vs. 1506 g; P<0,05), bem como, maior ganho de peso diário (46,4 vs. 36,7 g/d; P<0,05) e melhor conversão alimentar (2,75 vs. 3,33; P<0,05), no período de 35 a 56 dias. Entretanto, estes animais não mantiveram os resultados de melhor desempenho no período posterior (56 a 77 dias) onde o desempenho foi semelhante. Pode-se sugerir a ocorrência de adaptação dos coelhos ao piso, ao longo do tempo.

Keywords: alternative system, cage, feed conversion, housing condition, rabbit production

Introduction

The growing interest of the population, especially from more developed countries, for food safety and animal welfare has led many scientists to investigate

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and develop less-intensive rearing systems, which can be applied to the animal production chain (Szendrő and McNitt, 2012). The rabbit breeding on the floor pen covered with litter objectives the use of unproductive areas of the farm, such as sheds previously used by other animal species. This alternative housing system can provide more space to the rabbits, contributing to an increased expression of their natural behavior and welfare. It can also reduce productive costs considering that cages are not necessary (Dal Bosco et al., 2002, Ramirez et al., 2009, Gerencsér et al., 2014).

For the animal, the housing system can influence the tissue growth due to the possibility of mobility and greater social interaction. It can lead to changes in performance, carcass properties, as well as sanitary status (Szendrő and Dalle Zotte, 2011). The purpose of this experiment was to study the effect of housing systems (pen vs. cage) on the growth performance of rabbits.

Material and methods

The study was carried out at the Federal Institute of Minas Gerais (IFMG), Bambuí Campus, from January to February, 2018. The approval of the Institutional Animal Care and Use Committee (CEUA/UNIFENAS) was registered under protocol number 28A/2016. The experimental period started at weaning (35 d) and finished at slaughter (77 d).

A total of 54 male and female rabbits, crossbreeds between New Zealand White and Botucatu, were randomly assigned to groups housed in pen on deep litter (6 pens of 2.0 x 1.3 m each; 6 rabbits per pen; 2.3 rabbits/m²; n = 36) or in cage (6 cages of 0.6 x 0.6 m each; 3 rabbits per cage; 8.3 rabbits/m²; n = 18). The average body weight (BW) of the rabbits at the beginning of the experiment (35 d) was the same across both housing system ($P > 0.05$, Table 1). The pens were equipped with drinkers and feeders used for poultry and the cages were equipped with nipple water drinkers and semi-automatic feeders. The rabbits were allowed *ad libitum* access to

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water and feed over the entire experimental period. A commercial pelleted diet was provided (CP: 13.7%, ADF: 20.8%, DE: 2200 kcal/kg). At 56 d, rabbits received sulfaquinoxaline via drinking water, to prevent coccidiosis. The 5 cm thick rice straw litter placed on the concrete floor was refreshed with a new layer every three weeks. PVC pipe was used for both housing systems as environmental enrichment.

The BW was recorded at 35, 56 and 77 d, and body weight gain (BWG), feed intake (FI) and feed conversion (FC) were recorded from 35 to 56 d, 56 to 77 d and 35 to 77 d. The data were submitted to analysis of variance using the Statgraphics Centurion software and means were compared by the Scheffe's test and SNK test, respectively, at the 5% probability level.

Results and discussion

Rabbits housed in pens had lower BW ($P < 0.05$), at 56 and 77 d (Table 01). Our result is not consistent with Ramirez et al. (2009) who reported higher final BW of rabbits raised on the floor with density of 5.5 rabbits/m².

Table 1 – Performance of rabbits housed in two housing systems (pen vs. cage) from 35 to 77 d

| Trait | Housing system | | EE | P |
|-----------------------------|-------------------|-------------------|-----|--------|
| | Cage | Pen | | |
| Body weight (BW, g) | | | | |
| 35 d | 740 | 735 | 8 | 0.6573 |
| 56 d | 1714 ^a | 1506 ^b | 26 | 0.0002 |
| 77 d | 2324 ^a | 2103 ^b | 26 | 0.0001 |
| Body weight gain (BWG, g/d) | | | | |
| 35 - 56 d | 46.4 ^a | 36.7 ^b | 1.2 | 0.0003 |
| 56 - 77 d | 29.1 | 28.5 | 1.7 | 0.7939 |
| 35 - 77 d | 37.7 ^a | 32.6 ^b | 0.6 | 0.0002 |

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Feed intake (FI, g/d)

| | | | | |
|-----------|-------|-------|-----|--------|
| 35 - 56 d | 127.2 | 122.0 | 4.9 | 0.4606 |
| 56 - 77 d | 157.7 | 158.8 | 2.6 | 0.7621 |
| 35 - 77 d | 142.5 | 140.4 | 3.1 | 0.6422 |

Feed conversion (FC)

| | | | | |
|-----------|-------------------|-------------------|------|--------|
| 35 - 56 d | 2.75 ^a | 3.33 ^b | 0.13 | 0.0111 |
| 56 - 77 d | 5.47 | 5.72 | 0.42 | 0.6728 |
| 35 - 77 d | 4.11 | 4.52 | 0.20 | 0.1632 |

^{a,b}Values followed by different letters in a row differ according to Scheffe's test at P<0.05.

According to our results, rabbits housed in cages had higher BWG and better FC (P<0.05; Table 01), from 35 to 56 d. However, there was no effect (P>0.05) of housing system for BWG, FI and FC from 56 to 77 d. The FI was similar (P>0.05) for rabbits from both housing systems over the entire experimental period. It is expected that rabbits housed in pen show higher energy expenditure, and therefore, lower BWG compared to those housed in cages (Dal Bosco et al., 2002). As verified in this essay, Gerencsér et al. (2014) reported that rabbits raised on the floor with litter showed lower performance in the first time period, but there was a recovery in the following period. Gerencsér et al. (2014) cited that rabbits prefer wire floor or plastic floor when compared to the floor with straw litter.

Conclusion

The housing on pen with litter provided a decrease in the performance of the rabbits in the period of 35-56 days of age, differently from the following period of 56-77, when there was no influence of the housing system in performance.

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