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Effect of Cage Floor Type on Behaviour, Performance and Carcass Traits of Growing Rabbits

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Abstract

The aim of this study was to investigate the effect of cage floor type on different behavioural patterns, productive performance and carcass traits of growing rabbits. Twenty seven non sexed weanling growing New Zealand rabbits (4-5weeks of age) were used in this experiment. The animals were randomly divided into three groups of 9 rabbits according to the kind of cage floor. The first group was reared on wire mesh cage floor. While, the second group was reared on plastic hollow mat and the third one was on rubber hollow mat. A focal sample technique was used for recording the behavioural patterns throughout the experimental period (6 weeks). Rabbits were individually weighed at the commencement of the experiment and at weekly intervals along the experimental period. The feed consumption throughout the experiment was recorded weekly. The results revealed that the cage floor type had an effect on the drinking, aggression and abnormal behaviour time, but did not influence any other behaviours (feeding, ceacotrophy, comfort, social, resting and locomotion). The kind of cage floor had no impact on feed consumption, body weight, relative growth rate and carcass traits. While body weight gain, feed conversion ratio and feed efficiency were significantly better in the group reared on plastic cage floor (26.46±1.45g/day, 3.78±0.22 and 0.277±0.004, respectively). Cortisol level was significantly higher in wire caged rabbits than those reared on rubber and plastic cage floor (0.65±0.72 µg/dl vs 0.45±0.38 µg/dl and 0.37±0.12 µg/dl, respectively). It could be concluded that the application of rubber or plastic mat on the floor of wire cage reduced the aggressive and abnormal behaviour with lower cortisol level and improved growing rabbit productivity and potentially welfare.

Keywords: Rabbits, Cage, Floor, Behaviour, Productive, Performance

Introduction

High prolificacy and fast growth make rabbit an ideal animal for meat production in developing countries. Rabbit behaviour is influenced by the external factors which affect its welfare and is reflected on its production under such environment. Recently, animal welfare augments interest worldwide, therefore, investigating for a better housing condition is the aim of many researchers [1]. Different forms of cages or pens (dimensions, type of floor, enrichment, etc.) are considered in prospect of their impacts on animal welfare and luxury during rearing. The floor type of the cages had an impact on the well-being of rabbits. Rabbits settled most of the time resting on the cage floor, therefore, it was believed to be one of the most crucial factors influencing the animal welfare [2,3]. The floor of wire mesh is easy to clean, cheap and achieves the hygienic prerequisites, but rabbits could stay less period with resting on wire net when compared with the other cage floor types [4].

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From the behavioral point of view, the floors of slats with galvanized steel bars and wire net were similar reflecting the same level of wellbeing [5]. Rabbits had a preference to the plastic-mesh than a wire-mesh floor in resting and active phases [6]. However, in a previous study, it was reported that rabbits preferred the wire net and plastic slat cage floor with increasing their age or/and weight [7]. In contrast, Gerencsér *et al*. [8] showed that the priority for plastic-mesh or wire- mesh floor relied on the temperature. The plastic-mesh has been preferred at lower temperature, while at medium and higher temperatures, rabbits preferred the wire-mesh floor at the final fattening period. In spite of, the weak thermal conductivity of plastic, it may provide a feeling of warmness and could reduce foot pad injuries. Nevertheless, rabbits could chew plastic cage floors with an increased hazard of coccidiosis due to the fast developed moisture and faeces on the plastic cage floors [9].

The application of plastic or rubber mat on the floor of wire cage did not influence the productive performance of growing rabbits, but it simultaneously decreased the occurrence of eye and ear lesions which occurred as a result of aggressive behaviour [1]. In addition, it reduced the impact of chronic stress on total and differential Leukocytic count, consequently the floor of rubber and plastic cage had advantages from the perspective of animal welfare. On the other hand, the presence of plastic net floor increased the welfare and productivity of V-line rabbits [10]. Not only, different cage floor types had a positive effect on behaviour, but also in the performance and carcass traits [11]. Rabbits reared on plastic or wire-mesh floors revealed no differences in body weight (BW), weight gain and slaughter performance [12]. Cage floor type had no significant effect on the final BW and feed conversion efficiency, but the daily weight gain (at 6-7 weeks of age) was higher in rabbits raised in cages with floor of wire net when compared with the floor of rubber and plastic mat [1]. The study also revealed that the feed consumption at 5-8 weeks of age was significantly increased in rabbits housed in cages with floor of wire net when compared with other forms of cage floor, while feed consumption was the same in the three groups between weeks 9 to 11. Feed consumption was greater in rabbits reared on floor of rubber and wire at 7-8 weeks of age than those reared on plastic floor [1]. The feed conversion efficiency did not reveal any differences among the three groups throughout the experimental period [1,13]. Relative growth rate (RGR) was significantly higher for plastic floor than wire floor or combination floor [10].

The slaughtering performance of growing rabbits raising on floors of plastic or wire mesh was similar [13,14], however, housing rabbits on a plastic rather than a wooden slatted floor elevated slaughter weight (2795 vs. 2567g) [15]. The objective of this research was to investigate the effect of floor cage type (wire mesh, rubber and plastic mat) on various behavioural aspects, productive performance and carcass traits of growing rabbits.

Material and Methods

This experiment was carried at the Experimental Research Animal Unit in the Faculty of Veterinary Medicine, Zagazig University through the period from 1st May to 15th of June 2014.

Animals and management

A total number of twenty seven non sexed weanling growing New Zealand rabbits (4-5 weeks of age) were used in this experiment. Each animal was identified by a different colour on its fur with a non toxic permanent marker to facilitate behavioural observations. Some of them were re-marked when necessary. They were divided into three groups of 9 animals, each. Group one**:** rabbits were housed on a floor of wire net cage, which was prepared from galvanized wire with 15×25 mm and 3 mm wire diameter. Group two**:** rabbits were housed on rubber hollow mat prepared from rubber constituent with holes of 15×25 mm in size. Group three**:** rabbits were housed on a plastic hollow mat prepared from plastic net with holes of 15×25 mm in size. Before weaning, all rabbits were maintained on floor of wire net cage in the

does' cages. The rabbits (N=27) were reared in galvanized cages with the same size (50 cm x 50 cm x 30 cm LxWxH) with a basic area of 0.25 m^2 and three rabbits per cage stocking density. The lighting schedule was 16 lighting hours. The average daily environmental temperature and relative humidity were 25.7°C and 49.6%, respectively. Good ventilation and fresh air were admitted to reduce ammonia concentration in the house in which the natural ventilation without thermal insulation or cooling system has been used. The hygienic disposal of wastes and floor disinfection with iodine was done daily.

Feed and water were supplied as *ad-libitum*. Water tanks were washed twice per week and daily assurance that nibbles efficiently work was performed. Fresh water was continuously available through water nibbles.

Anticoccidial drugs and prophylactic antibiotics were provided to water immediately after weaning for 3 to 5 days. Selenium, AD3E, Vitamin E and mineral salts also were added twice per week to cover any deficiency and increase the flock vigour along the experimental period. In addition, Ivermectin 0.1 ml/kg live BW was injected subcutaneously monthly for the internal and external parasites. Rabbits were fed on commercial pelleted diet consisted of the following nutrients as stated in the factory label: crude protein 19%, fat 2.2-2.5%, crude fiber 15-16% and metabolizable energy not less than 2200-2500 kcal

Observation and data collection

A focal sample technique was used during the observation period. An observation sheet, a stop watch and a photographing camera were used during the observation time for recording the behavioural patterns. The behavioural observation was performed as recommended by Abdelfattah *et al.* [1] and Paul and Patrick [16]. The behavioural activities were recorded during the daylight hours during the experimental period (6 weeks). In order to achieve a representative sampling of the rabbits' natural activity pattern, the technique where growing rabbits were surveyed three times daily (08:00 to 09:00 h; 12:00 to 13:00 h and 16:00 to 17:00 h) for three days weekly to achieve three daily inspection periods for each group was chosen [17].

The behavioural activities of rabbits from each group were recorded at 5 minutes intervals and after 5 minutes of their adaptation to the observer.

Behavioural patterns

The observed behavioural patterns were recorded according to Jordan *et al.* [18] in Table (1).

Productive performance

Body weight and daily feed intake (DFI) were recorded. Daily weight gain (DWG), relative growth rate (RGR), feed conversion ratio (FCR) and feed efficiency were calculated.

Stress indicating hormone

Blood samples were collected randomly at the end of the experiment from the marginal ear vein of three selected rabbits after shaving and cleaning with alcohol into dry clean centrifuge tubes [1]. The blood was left at room temperature until coagulation and then centrifuged at 3000 rpm for 10 minutes. The clear sera were aspirated carefully by pipette and transferred into dry and sterile labelled tube then kept at a deep freezer at -20°C till the analysis was done and the cortisol level was estimated.

Carcass traits

At the end of the experiment, three rabbits were randomly selected from each group, after fastened for 6 h and were weighed to the nearest gram before slaughtering. Slaughtered rabbits were let to bleed freely [19]. Giblets, perirenal and periscapular fat were weighed. Percentages of the previously mentioned organs relative to live BW were calculated. The hot carcass weight was weighed 15-30 minutes after slaughter with the head, after removing all the organs. Dressing out percentage was calculated with the following formula:

$$\text{Dressing out percentage} = \frac{\text{Hot carcass weight}}{\text{Live body weight}} \text{X100}$$

Table 1: The observed behavioural patterns of New Zealand rabbits

Observed behavioural patterns	Definitions
Feeding	Rabbits were standing next to the feeder, taking out pellets and chewing them.
Drinking	Drinking water from the nipple drinker.
Caecotrophy	Rabbits bowed down, pushed the head between hind legs and ingested caecotrophs directly from anus. Afterwards they rose, and chewed intensively for a few moments.
Exploratory behaviour	a. Sniffing: rabbits sniffed the air or the cage itself (walls, floor, feeder etc.).
	b. Rearing up: sitting on the hind legs with bodies in upright position.
Locomotion (Jumping)	Rapid jumping in the cage or circling. Rabbits often turned for 180° with one jump only.
Comfort behavior A. Stretching	i) Rabbit stretching: rabbits extended the front paws forwards, the front part of the body was lying on the floor, and then they pushed the hind part backwards with the head often tipped back. Stretching occurred also in the opposite direction, where the whole body was pushed forward and up with the hind legs stretching backwards.
B. Body care behaviour	ii) Cat-like stretching: rabbits arched the back like a cat.
	i) Grooming: licking and nibbling the fur, washing faces with forelimbs, licking ears held in front of the snout with forelimbs. ii) Scratching: the hind feet were used to scratch the body, neck, face, ears. Scratching was usually followed by licking the end of the foot used for scratching lasting a few moments.
Resting	i) Resting–abdominal posture: resting with the belly on the ground, hind limbs tucked under the body and forelimbs either tucked beneath the body or stretched forward. The head was in upward position. ii) Resting–abdominal-lateral posture: resting with the body trunk on the ground, forelimbs either tucked beneath the body or stretched forward and hind limbs more or less stretched away from the body. The head was usually in upward position. iii) Resting–lateral posture: resting on the side with all four legs stretched away from the body and the head was in lying position.
Social behaviour	a. Contact with the neighbour rabbit – single sided: rabbit sniffed his neighbour who did not show any response to it. b. Contact with the neighbour rabbit – double sided: observed rabbit and his neighbour touched with their snout.
Aggression	Aggressive interaction (i.e. biting, fighting and chasing each other).
Abnormal behaviour	Biting wire and cage equipments.

The carcass cuts: percentages of fore (from atlas vertebra to the seventh thoracic vertebra), intermediate (from the seventh thoracic vertebra to the sixth lumbar vertebra) and hind parts (from the sixth lumbar vertebra) were determined.

Statistical analysis

Data of BW, DWG, RGR, DFI, FCR and feed efficiency were analyzed by the ANOVA model using SPSS [20] and the means were compared by Duncan multiple comparisons. The statistical model included the following effects: $Y_{ij} = \mu + F_i + e_{ij}$

Where: Y_{ij}: observation studied.

μ: the general mean.

F_i: the effect of floor type (i=1-3; 1= wire mesh, 2=Rubber mat and 3= Plastic mat).

e_{ij}: is the random error.

Table 2: Means (±SE) of behavioural patterns duration (sec/h) of growing New Zealand rabbits in response to cage floor type

Behavioural patterns	Cage floor type			P-value
	Wire mesh	Rubber mat	plastic mat	
Feeding time (sec/hr)	558.44±75.90	653.49±52.71	765.49±103.0	0.219
Drinking time (sec/hr)	140.88±38.60 [ab]	98.66±24.70 [b]	210.94±27.30[a]	0.061
Caecotrophy time (sec/hr)	13.05±2.30	13.72±7.50	19.05±6.50	0.738
Rearing time (sec/ hr)	3.99±1.77	2.27±0.68	4.04±1.51	0.608
Sniffing time (sec/hr)	98.99±16	74.99±19	102.1±30	0.656
Social time (sec/ hr)	13.83±7.20	18.55±7.75	16.72±4.70	0.882
Resting time (sec/hr)	1429±75.00	1751.7±96.02	1524.2±187.40	0.225
Body care time (sec/hr)	747.27±55.80	737.38±89.40	848.88±129.40	0.671
Stretching time (sec/hr)	3.88±0.59	2.83±0.86	2.72±0.71	0.474
Locomotion time (sec/hr)	25.66±4.22	19.82±4.96	24.49±5.29	0.674
Standing (sec/hr)	171.11±13.40	171.2±13.50	181.4±33.20	0.931
Aggression time (sec/hr)	9.33±4.20 [a]	3.16±1.28 [b]	2.66±1.15 [b]	0.007
Abnormal behaviour time (sec/hr)	89.16±28.80[a]	20.55±7.55 [b]	26.99±11.28 [b]	0.035

Means within the same rows carry different superscripts are significantly different at P<0.05

Results and Discussion

The effect of cage floor type on different behavioural patterns, productive performance and carcass traits of growing New Zealand rabbits were investigated and the recorded results were analyzed and discussed.

Behavioural patterns duration of growing rabbits in response to cage floor type

There was no significant difference in mean time of feeding behaviour during 3 hours observation period. It was higher in plastic cage floor group (765.49±103.03 sec) than rubber cage floor and wire floor cage (653.49±52.71 and 558.44±75.9 sec, respectively) (Table 2). These results coincided with that recorded by Rashed and El-Edel [10] who found that feeding behaviour was the lowest for wire caged rabbits. On the other hand, these results were in contrary with Abdelfattah *et al.* [1] and Jekkel and Milisits [21] findings who reported that rabbits reared on wire floor had higher feeding behaviour than other floors. In other studies, the floor type did not affect on feeding behaviour [6,22].

The drinking time was the lowest for the rabbits reared on rubber floor (98.66±24.7 sec) then intermediate for others on wire net floor (140.88±38.6 sec) and the highest was for group reared on plastic mat (210.94±27.3 sec), but the difference just approached the significant level (P=0.06). The current result was in conformity with the report of Rashed and El-Edel [10] who found that drinking was higher in plastic floor followed by wire net floor. The rabbits performed drinking was significantly higher in cages with floor of wire or plastic mat in comparison with those housed in cages with floor of rubber mat [1]. We hypothesized that, with the increase in feeding, rabbits need much drinking water to facilitate the swallowing and ingestion of such food. This is corroborated with the finding of Jekkel and Milisits [21] who stated that, the floor type had a noticeable influence on most of examined behaviour except drinking and locomotion frequencies.

The cage floor forms had no detectable consequence on the caecotrophy behaviour of rabbits (Table 2). Our result was in harmony with the findings of Szendrő and Dalle Zotte [22] who stated that there were no differences in the frequency of behavioural patterns between rabbits reared on floor of plastic or wire net. The cage floor forms did not affect the exploratory behaviour (sniffing and rearing) (Table 2). These results were comparable to the results detected by others [1,6,22]. In contrary, rabbits reared on plastic floor alone or in combination with wire significantly increased the exploration behaviour than those reared on wire [10].

Concerning the social behaviour time as shown in (Table 2), it was insignificantly

lower for rabbits reared on wire net floor (13.83±7.2 sec) when compared with rabbits raised on cages with rubber or plastic mat. These results were comparable with the result obtained by Jekkel *et al.* [23] who stated that changing the cage floor form wire net to deep litter did not change the frequency of social behaviour. But**,** the social behavior was higher for rabbits housed on wire floor than those for rabbits housed on plastic or rubber mat floor, although the difference was not significant [1]. The frequency of the social behaviour was higher on the combined floor when compared with floor of wire net [21].

Table 3: Effect of cage floor type on productive performance and cortisol level of growing New Zealand rabbits

	Floor type			
Traits	**Wire mesh**	**Rubber mat**	**Plastic mat**	**P-value**
Body weight (g)	1213.85±130	1322.85±120	1255.14±147	0.845
Daily body gain	23.57±0.06 [ab]	22.5±0.62 [b]	26.46±1.45 [a]	0.052
Relative growth rate %	75.85±8.99	73.92±1.56	89.10±2.50	0.183
Daily feed intake (g/rabbit/day)	101.1±16.80	100.6±10.90	99.7±6.40	0.979
Feed conversion rate	4.28±0.01 [a]	4.53±0.06 [a]	3.78±0.22 [b]	0.018
Feed efficiency	0.233±0.001 [b]	0.221±0.003 [c]	0.277±0.004 [a]	0.000
Cortisol level (µg/dl)	0.65±0.72 [a]	0.45±0.38 [b]	0.37±0.12 [b]	0.015

Means within the same rows carry different superscripts are significantly different at P<0.05

In the present study, the body care behaviour time was the highest in rabbits reared on plastic mat floor type (848.88±129.4 sec), but the difference was not statistically significant. These results were similar to the results obtained by Abdelfattah *et al.* [1]. The contradictory opinion was reported by Rashed and El-Edel [10] who recorded that body care behaviour was significantly higher in rabbits reared on plastic or floor combination of plastic and wire than wire net floor only. On the other hand, stretching time was insignificantly higher in rabbits raised on floor of wire cage (3.88±0.59 sec) when compared with others raised on floor of plastic and rubber.

In the current study, the comfort behaviour (body care and stretching behaviour) did not change under different cage floor types. Therefore, a same degree of luxury on the three forms of cage floor was observed, this was comparable with the findings of others [6,22,24]. In contrast, the comfort behaviour was highly significantly increased in wire floor than combined floor [21]. Applying plastic or rubber mat on wire mesh had no detectable impact on mean duration of resting behaviour during 3 hours observation period (Table 2). Time of resting behaviour of rabbits housed on wire mesh, rubber mat and plastic mat were 1429±75,1751.7±96.02and 1524.2±187.4 sec, respectively. The results were similar to Drescher [4] who reported that rabbits could stay more time with resting on other cage floor forms when compared with wire net. The contrary results were recorded by Rashed and El-Edel [10] who found that the proportion of resting periods were lower in growing rabbits raised on floor of plastic net compared with those raised on floor of wire net.

Neither locomotion time nor standing time were significantly affected by the type of floor in this study (Table 2), which indicated that applying rubber or plastic mat on the floor of wire mesh cage did not alter the rabbit's activity. Our results were similar with findings of others [1,21-23]. But, Rashed and El-Edel [10] noted that the movement activities were significantly higher in rabbits reared on plastic or combination floor of plastic and wire than wire net floor only. There was a significant effect of floor type on the aggression time where rabbits reared on wire net had higher aggression time (9.33±4.2 sec) than rabbits reared on rubber and plastic (3.16±1.28 and 2.66±1.15 sec, respectively) (Table 2). The current results were corroborated with the finding of Abdelfattah *et al.* [1]. The abnormal behaviour time was increased in wire caged rabbits (89.16±28.80 sec) than those reared on

rubber and plastic floor (20.55±7.55 and 26.99±11.28 sec, respectively). These results agreed with Jekkel and Milisits [21] who found that the wire floor had a highly significant increase in stereotypes behaviour than combined floor, therefore the combined floor could be favourable as decreasing the frequency of stereotypes behaviour.

Table 4: Effect of cage floor type on carcass traits of growing New Zealand rabbits

Carcass traits	Floor type			P-value
	Wire mesh	Rubber mat	Plastic mat	
Pre slaughter weight(g)	1568.33±28.04	1648.33±65.97	1725.00±68.98	0.320
Dressing out %	60.66±0.84	60.46±0.40	59.95±2.30	0.938
Liver weight %	03.65±0.32	3.81±0.08	3.31±0.08	0.261
Kidney weight %	01.00±0.15	0.83±0.03	0.82±0.13	0.508
GIT weight %	19.66±0.72	18.09±0.14	18.93±0.90	0.326
Pre scapular fat %	0.14±0.002 [b]	0.13±0.04 [b]	0.28±0.03 [a]	0.020
Perirenal fat%	0.27±0.05	0.22±0.01	0.31±0.03	0.262
Forpart weight %	17.08±0.50	17.31±0.08	17.36±0.64	0.913
Intermediate part%	11.21±0.43	11.01±0.32	11.33±0.73	0.908
Hind part weight%	18.85±0.27	18.90±0.10	18.23±0.38	0.236

Means within the same rows carry different superscripts are significantly different at P<0.05

Our results indicated that the cage floor (wire mesh, plastic and rubber mat cage) did not reveal any behaviour differences except the aggressive and abnormal behaviour duration. Thus, it was obvious that floor of rubber and plastic mat reduced the aggression and stereotypes behaviour which might be manifested on rabbit productive performance. The current results partially agreed with the reported results by other researchers [1,5,6,22,23,25] who stated that the behaviour of rabbits was not affected by the form of cage floor. On the other side, behaviour was strongly affected with the floor types and the best results were for the plastic net floor that affects the growing rabbits' welfare [10].

The effect of floor type of the cage on productive performance of growing rabbits

The body weight of growing rabbits was not influenced by the floor type of cages, however, rabbits reared on the wire floor had lower body weight (1213.85±130g) than those reared on rubber and plastic floors (1322.85±120 and 1255.14±147 g, respectively) (Table 4). These results were similar to the findings of other researchers [1,5,6,8,9,13,22] who reported that the floor type of the cage had no impact on BW. While, Trocino *et al.* [26] reported that the floor type significantly affected the final body weight which was lower for rabbits reared on a wire net bedded with straw than steel, plastic slats and wire net. Also**,** the final BW of rabbits reared on deep-litter was 8% lower than rabbits reared on wire-mesh [27].

The daily weight gain for rabbits housed in cages with floor of wire mesh, rubber mat and plastic mat were 23.57±0.06, 22.5±0.62 and 26.46±1.4 g, respectively, thus, the cage floor type had a significant influence on the daily gain of growing rabbits and plastic floor group recorded the highest daily weight gain (DWG) values. The current results agreed with Gerencsér *et al.* [8] who recorded a significant difference between the deep-litter and plastic-mesh groups for the average daily weight gain. The contradictory opinion was reported by others [1,6,10,12] who stated that the floor type of the cage had no detectable effect on daily weight gain. Relative growth rate (RGR) was higher for rabbits kept in cages with plastic mat (89.10±2.50%) but, the difference was not significant among rabbits raised in cages with different floor types, this was supported by Rashed and El-Edel [10]. Regarding to feed consumption, it was similar for rabbits reared on the three floor types. These results were supported by others [1,8]. But, the overall DFI from 35-70 days was significantly affected by the floor type [10]. Feed conversion ratio (FCR) and feed

efficiency were significantly influenced by the floor type of the cage. They were the best for rabbits housed on floor of plastic mat (3.78±0.22 and 0.277±0.004, respectively). These results were not consistent with previous studies that reported no difference in FCR of rabbits reared on different floor types [8,10,26].

The effect of floor type of the cage on stress related hormones of growing rabbits

Regarding cortisol level in relation to the cage floor type (Table 3), it was increased in rabbits raised on floors of wire mesh (0.65±0.72 µg/dl) compared with those reared on floors of rubber and plastic (0.45±0.38 and 0.37±0.12 µg/dl, respectively). Such observation indicated that introducing rubber or plastic mat on the cage floor decreased stress and improved the welfare condition, this coincided with that previously reported results [1].

The effect of floor type of the cage on carcass traits of growing rabbits

The floor type of the cage had no impact on rabbits' carcass traits (Table 4). These results were comparable with those reported by several authors [5,6,9,12-14,22]. On the other hand**,** the cage floor type positively affected the performance and carcass traits [11].

Conclusion

From the results of this study, we concluded that the application of rubber or plastic mat on the floor of wire cage reduced the aggressive and abnormal behaviour with lower cortisol level and improved growing rabbit productivity and potentially welfare.

Conflict of interest

None of the authors have any conflict of interest to declare.

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الملخص العربي

تأثير نوع الأرضية في الأقفاص علي السلوك والأداء الإنتاجي وصفات الذبيحة للأرانب

هبة سعيد عبدالرحمن غريب ، نوار عبدالله خطاب ، محمد يوسف إبراهيم ،الصادق خليل يوسف ، هشام حسنى السيد محمد
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استهدفت هذه الدراسة معرفة مدي تأثير نوع أرضية الأقفاص علي سلوكيات الأرانب النامية وكفاءتها الانتاجية وصفات الذبيحة.

أجريت الدراسة علي عدد ٢٧ أرنب نيوزيلاندي تراوحت أعمارها (٤-٥ اسبوع) حيث تم تقسيمها إلي ثلاث مجموعات علي أساس نوعية أرضية الأقفاص (أرضية سلكية، أرضية بلاستيكية وأرضية مطاطية).

وقد أسفرت الدراسة عن النتائج التالية:-

١- لم يكن هناك تأثيرا معنويا لنوع أرضية القفص علي معظم سلوكيات الأرانب .

٢- سجلت الأرانب المرباه في أقفاص ذات أرضية سلكية أعلي معدل من السلوك العدائي وكذلك السلوكيات الشاذة من تلك المرباة في اقفاص مغطاة بأرضية بلاستيكية او مطاطية.

٣- لم يختلف معنويا أوزان الأرانب ومعدل استهلاكها للعلف بالإضافة الي معدل النمو النسبي بين المجموعات ألثلاث.

٤- حققت الأرانب المرباة في أقفاض ذات أرضية بلاستيكية أعلي معدل زيادة في وزن الجسم ومعدل التحويل الغذائي.

٥- لم تختلف صفات الذبيحة بين الأرانب المرباه في اقفاص ذات أرضيات مختلفة.

٦- كان هناك زيادة معنوية في مستوي هرمون الكورتيزول في الدم في الأرانب المرباه في اقفاص ذات أرضية سلكية عنه في المجموعات الاخري.