IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)
e-ISSN: 2319-2380, p-ISSN: 2319-2372. Volume 8, Issue 2 Ver. II (Feb. 2015), PP 101-102
www.iosrjournals.org

Effect of Stocking Density on the Performance of Soviet Chinchilla Rabbit

Rupam Bhattacharjya[1], A. Haque[2], D.C. Mili[3], J. R. Bora[4], A.M. Ferdoci[5]
[1](PhD scholar, Dept. of Livestock Production and Management, College of Veterinary Science, Khanapara-22, Assam Agricultural University, India)
[2](Assoc. Professor, Dept. of Livestock Production and Management, College of Veterinary Science, Khanapara-22, Assam Agricultural University, India)
[3](Professor, Dept. of Livestock Production and Management, College of Veterinary Science, Khanapara-22, Assam Agricultural University, India)
[4](Assoc. Professor, Dept. of Livestock Production and Management, College of Veterinary Science, Khanapara-22, Assam Agricultural University, India)
[5](Assist. Professor (Sr. Scale) Dept. of Animal Genetics and Breeding, College of Veterinary Science, Khanapara-22, Assam Agricultural University, India)

Abstract: *Twenty-four weaned Soviet Chinchilla rabbits of six week old having uniform size and body weights were selected. Animals were randomly divided into three groups. The groups were nomenclature as GI, GII and GIII having four, eight and twelve rabbits in each group and the evaluated densities were: 0.38m^2/rabbit; 0.19m^2/rabbit and 0.12m^2/rabbit, respectively. The animals were maintained on same basal diet and weekly body weights, body weight gains, feed consumption, feed conversion ratio are recorded. The study revealed that the rabbits providing 038m^2 floor spaces per animal showed better performance in terms of body weights, body weight gains and feed conversion ratio under the climatic condition of Assam.*
Key words: *Rabbit, stocking density.*

I. Introduction

From the animal welfare viewpoint, provision of adequate space and a suitable environment is important for providing freedom of movement and comfort. The number of rabbits in a cage or pen is one of the most important factors from the well being and production aspects.

Food safety starts from the farm and could be negatively affected by management factors such as hygiene and stocking density [1]. High stocking density affects the posture (standing/lying postures), feeding behaviour and welfare of animals and therefore affects productivity adversely [2]. Colony size did not appear to affect spatial distribution of birds but rather, more standing behaviour and less feeding behaviour were observed in the smallest and largest colony sizes [3].

Therefore, the investigation was aimed to find out the influence of stocking density on the performance of Soviet Chinchilla rabbits under the climatic condition of Assam.

II. Materials and Methods

The study was conducted on 24 weaned Soviet chinchilla rabbits of six weeks of age with uniform body weight. The animals were randomly divided into three groups of 4, 8 and 12 rabbits and kept in three identical netted cubicles with concrete floor of size 1.30 m x 1.16 m. The groups were nomenclature as G-I, G-II and G-III with space allocation per rabbit as 0.38m^2, 0.19m^2 and 0.12m^2 respectively. The rabbits received ad libitum concentrate in the morning and green fodder in the evening with the following composition shown in (Table.1).Feed leftover was weighed next day before offering new feed in the morning to estimate the actual amount of feed consumed. Wholesome drinking water was provided round the clock. The body weights of rabbits were recorded initially at 6 weeks and thereafter at weekly interval up to the age of 13 weeks. From the body weight records, weekly body weight gains were calculated. The feed conversion ratios (FCR) were worked out at weekly intervals on the basis of the dry matter of the feed required against the body weight gains. The data were analyzed as per standard statistical procedure.

III. Results and discussion

The values of weekly body weights are presented in the table 1 which suggests that group G-I, G-II and G-III rabbits at 6 and 7 weeks had no significant difference and the findings were in agreement to the findings of Princz et al. [4] who reported that stocking density had no effect on the productive parameters of growing rabbits. From 8 to 13 weeks the G-I rabbits did not exhibit any significant difference with the G-II category in the six recordings from 8 to 13 weeks. However, the G-I rabbits differed significantly ($P<0.05$) from G-III.

Moreover, the body weights of G-II rabbits also differed significantly from G-III rabbits. It may be explained by the fact that higher stocking densities exert stress to the animals, affecting their growths. The findings of Kalaba [5] and Das et al. [6] corroborate the results of the present study.

From the values of weekly body weight gains as shown in table II, revealed that from 7th to 9th weeks, G-I and G-II had no significant difference. However, the body weight gains of G-I and G-III as well as G-II and G-III varied significantly ($P<0.05$). From 10th week onwards up to 13th week the body weight gains differed significantly in all the three experimental groups. From the results it can be said that as the animals increased in their body weights, the space allocation proportionately decrease which was reflected from the altered gains in body weights from 10 weeks onwards. This suggests that minimum space allotment per rabbit is dependent on the body weights of the animal at that point of time.

The average quantity of feed consumed per animal from 6 to 13 weeks in G-I, G-II and G-III was 502.58±27.43g, 507.14±29.15g and 510.56±27.81 g respectively and all the three groups did not differ significantly. The average feed conversion ratio (FCR) per animal from 6 to 13 weeks in G- I, G-II and G-III was 5.89±0.18, 6.31±0.2 and 7.08±0.11 respectively. The values of group III differed significantly from that of group I and II, whereas group I and II did not differed significantly. The average feed conversion ratio of GI rabbits appeared best, the value being intermediate in GII and worst in GIII. The difference in feed conversion ratio values may be attributed to the corresponding difference in body weights. Verspecht et al. [7] documented similar reports wherein they stated that stocking density effects body weight which in turn disturbs feed conversion ratio. Iyeghe et al. [8] reported that feed conversion ratio was poorer at higher stocking densities which is in agreement to the present finding.

IV. Conclusion

Majority of the people from North-Eastern region of India is non-vegetarian and the food habit of its population suggests an excellent scope for rabbit meat production. In rabbit production enterprise, farmers have to raise and produce maximum number of marketable rabbits per year to attain high profitability. One way of doing this is to increase the number of rabbits stocked in a cage or house thereby minimizing the available space. It is also established that high stocking density reduces the cost of production in any livestock enterprise. However, excessive density might affect the performance of animals. Therefore, it is important to know the optimum stocking density without affecting various production parameters which in turn will increase the profitability. It is concluded from this study, that the rabbits providing 038m2 floor spaces per animal (compared to the rabbits of 0.19m2 and 0.12m2 floor spaces per animal) showed better performance in terms of body weights, body weight gains and feed conversion ratio under the climatic condition of Assam.

References

[1]. Stark, K.D.C., Food safety achieved through herd management. SAT, Schweizer Archiv für Tierheilkunde, 142 (12) 2000, 673-678.
[2]. Martrenchar, A., Morisse, J.P., Huonnic, D. & Cotte, J.P., The influence of stocking on some behavioural, physiological and productivity traits of broilers. Veterinary Research, 28 (5), 1997, 473-480.
[3]. Channing, C.E., Hughes, B.O. & Walker, A.W., Spatial distribution and behaviour of laying hens housed in an alternative system. Applied Animal Behaviour Science, 72 (4), 2001, 335-345.
[4]. Princz, Z.; Nagy, I.; Radnai, I.; Gerencser, Z. and Szendrı, Z., Effect of the floor type and stocking density on the productive performance of growing rabbits. 9th World Rabbit Congress, 2008 – Verona – Italy.
[5]. Kalaba, Z. M., Physiological response and stress indicators of California rabbits under intensive conditions in Egypt. Asian Journal of Poultry Science 6 (3), 2012, 65-78,
[6]. Das, K.S.; Handa, M.C.; Sirohi and Chandrahas, Effect of stocking density on the performance of Soviet Chinchilla rabbit. Indian Veterinary Journal March, 84, 2007, 309-310.
[7]. Verspecht, A.; Maertens L.; Vanhonacker F.; Tuyttens F.A.M.; Van Huylenbroeck G. and Verbeke W., Economic impact of decreasing stocking densities in broiler rabbit production based on Belgian farm data. World Rabbit Science 19, 2011, 123 – 132.
[8]. Iyeghe, T. Grace, E. and Olorunju, S.A.S., Effect of stocking density on performance of growing rabbits in the semi-humid tropics. Tropicultura , 23(1), 2005 19-23.

Table.1: Composition of concentrate and green fodder.

Type of feed	Moisture	Crude Protein	Ether Extract	Crude fibre
Concentrate	10.0%	15.68%	7.12	11.37%
Green fodder	74.0%	8.06%	1.93	8.04%