



Cairo University
Faculty of Veterinary Medicine



Effect of some management factors on productive performance in rabbits

A thesis submitted by

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(B.V.Sc. Cairo University, 2013)

For the degree of the (Master)
(Animal Behavior and Management)

Under the supervision of

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿ وَعَلَّمَكَ مَا لَمْ تَكُنْ تَعْلَمُ وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا ﴾

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Abstract

This study was conducted to investigate the effect of post-weaning feed restriction of fattening rabbits on their productive performance, behavior, physiology, and histopathological picture. A total of 48 weaned rabbits of 35-day age with average weight of 633.59 ± 34.5 g were divided randomly into 4 groups "12 rabbits per group" as follows: the first group was the control group (C), rabbits were fed *ad libitum* throughout the whole experimental period "7 weeks post-weaning;" the remaining three groups (T1, T2 and T3) were the restricted groups, where the rabbits were restricted to 50 g feed/ head/day for one week (T1), two weeks (T2), and three weeks (T3). At the end of each restriction period, rabbits of all groups were returned to *ad-libitum* feeding till the end of the experiment. The average live body weight, body weight gain, feed intake, FCR, mortality, and morbidity were recorded weekly till the end of the experimental period for all groups. Feeding, drinking, grooming and resting behavior activities were recorded for rabbits of all groups. Blood samples were collected from rabbits of all groups at end of restriction and at marketing for determination of some biochemical parameters. For histomorphological examination, two rabbits from each restricted group were sacrificed at the end of restriction and another two at marketing "the same was done for the control group at the same corresponding ages." The following organs were examined: small intestine, cecum, sacculus rotundus, appendix, liver, spleen, and mesenteric lymph node. The obtained results revealed that feed restriction has a positive effect on growth performance, where T2 group recorded the highest marketing weight (1763 ± 36.27 g), followed by T3 group (1581 ± 29.4 g) and then C group (1579.4 ± 63.06 g), while T1 group showed the lowest weight (1553 ± 27.18 g). Also, the FCR obtained was 4.24 ± 0.02 (T2) followed by 4.46 ± 0.02 (T3) and 5.12 ± 0.1 (T1) while the highest FCR was recorded by the control group (6.06 ± 0.05). Behavioral data analysis revealed that restricted rabbits "T1, T2, and T3" showed higher feeding (23.92, 18.55, and 17.41 vs. control 6.97) while lower resting activities in restricted rabbits 55.49 (T1), 60.1 (T3), and 61.9 (T2) vs. control 81.34) as a total mean during the whole experimental period. Histomorphological pictures showed the adaptation of rabbits to restricted strategy through increased villus length and higher resorption activity during restriction to get the highest benefit of the restricted feed amount. Concerning blood biochemical parameters, it was observed that restriction slightly decreases blood glucose level while improving triglycerides and cholesterol levels in fattening rabbit compared with the control group. Based on all obtained results and from the economic point of view, it could be concluded that fattening rabbits' post-weaning feed restriction "50 g feed/head daily" for 2-3 weeks has clear beneficial effects and can be used successfully as a good management tool in commercial rabbit farms.

Keywords: Fattening rabbits, post-weaning feed restriction, growth performance, behavior, gut histomorphology, blood biochemical parameters

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List of Abbreviations

Item	Meaning
AL	<i>Ad Libitum</i>
ALT	Alanine Aminotransferase
a.m	At Morning
ANOVA	One-Way Analysis of Variance
AOAC	Association of Analytical Communities
AS	Absorption surface
AST	Aspartate Aminotransferase
BWG	Body Weight Gain
DE	Digestible Energy
ERE	Epizootic Rabbit Enteropathy Syndrome
FCR	Feed Conversion Ratio
FI	Feed Intake
FR	Feed Restriction
GOT	Glutamic Oxaloacetic Transaminase
GPT	Glutamic Pyruvic Transaminase
LBW	Live Body Weight
LDCs	Less Developing Countries
NEFA	Non-Esterified Fatty Acids
NGOs	Non-Governmental Organizations
NRC	Nutrition Rehabilitation Center
NZW	New Zealand White
p.m	At Evening
SAS	Statistical Analysis System
S/C	Subcutaneous
SE	Standard Error
TG	Triglycerides
USA	United states of America
VFA	Volatile Fatty Acids
VIT	Vitamins

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