EFFECT OF BREEDING SYSTEM AND STRAIN ON PRODUCTIVITY AND RECOVERING OF BODY CONDITION IN RABBIT DOES AFTER KINDLING

By

SHEREEN SALAMA YOUSSEF GHONEIM
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A Thesis Submitted in Partial Fulfillment
Of
The Requirements for the Degree of

DOCTOR OF PHILOSOPHY
in
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(Poultry Physiology)

Department of Poultry Production
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This Thesis for Ph.D. degree has been approved by:

Dr. Abd El-Hamid El-Sayed Abd El-Hamid Youssef …….
Prof. of Poultry Physiology, Faculty of Agriculture, Damanhur University.

Dr. Sayed Ahmed Abdel-Fattah ..……...….
Prof. of Poultry Physiology, Faculty of Agriculture. Ain Shams University.

Dr. Ayman Mohamed Hassan Ahmed ……...…...
Prof. of Poultry Physiology, Faculty of Agriculture. Ain Shams University.

Dr. Ibrahim El-Wardany El-Sayed Hassan ….……...…
Prof. Emirates of Poultry Physiology, Faculty of Agriculture, Ain Shams University.

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Under The Supervision of:

Dr. Ibrahim El-Wardany El-Sayed Hassan

Prof. Emirates of Poultry Physiology, Department of Poultry Production, Faculty of Agriculture, Ain Shams University (Principal Supervisor).

Dr. Ayman Mohamed Hassan Ahmed

Prof. of Poultry Physiology, Department of Poultry Production, Faculty of Agriculture, Ain Shams University.

Dr. Ahmed Farid Mahmoud Hilmy

Head Researches of Animal Breeding, Department of Rabbit Breeding, Animal Production Research Institute.

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Head Researches of Animal Breeding, Department of Rabbit Breeding, Animal Production Research Institute.

ABSTRACT

Shereen Salama Youssef Ghoneim: Effect of breeding system and strain on productivity and recovering of body condition in rabbit does after kindling. Department of Poultry Production, Faculty of Agriculture, Ain Shams University,

Present study included two experiments, first experiment that aimed to study the effect of re-mating interval after first kindling only and breed and their interaction on body weight, body scores, some hormones, metabolites, milk yield, litter traits, ovary activity and reproductive performance in APRI line and Baladi Black breed rabbit. The rabbit does after the first parturition (primiparous) were allocated to: group 1 (PP): re-mating interval 1-day post kindling, group 2 (PS): re-mating interval 11 days post kindling and group 3(PW) re-mating interval after 35 days post kindling (after weaning).

The intermediate score was based for bone protrusions and muscle fullness on the lion and rump, the highest value at mating in PW group at 1st parity and during next parities. The highest ($P \leq 0.05$) value of leptin was recorded by PW group at mating during 1st Parity and 2nd Parity. there were significant differences on milk yield, the highest values were recorded by PW group during 3rd week of lactation while the lowest were recorded by PP group during 3rd and 4th weeks of lactation. The highest values of litter size (LS) were recorded in PW group. Data of comet test presented no significant effects were observed between groups. Result in 1stparity there is superiority for APRI line at kindling. APRI rabbits at 1stparity and next parities had significantly ($P \leq 0.05$) higher in all litter size and litter weight traits than Baladi Black rabbits. Intermediate score was the highest values comparing to other scores during all parities and APRI rabbits at mating taken the highest value. Interaction between genotypes and re-mating interval had significant effect on plasma leptin, and insulin concentrations during 1st ^{and} 2nd parities. During 1st parity, there were significant differences on milk yield during all lactation

periods studied except during 1st week of. During next parities, there were significant differences during all lactation periods. At first parity, there were significant differences in litter size at 21 days and at weaning due to the interaction. During next parities, all litter traits were significant differences except litter size and weight at 21 days. The interaction between breed and interval groups had a significant effect on kindling interval (KI) while it had not significant effect on number of services per conception (NSC) and gestation length (GL). In conclusion: delay the re-mating after first kindling resulted to improve reproductive performance in rabbit does.

Second experiment aimed to compare three breeding systems that differed in terms of reproductive rhythm and age of females at first mating on rabbit litter, reproductive traits and productivity in nulliparous does. Two genotypes APRI and Baladi Black were divided into three different groups; groupW_{24}, 24 wk with 52 d; group W_{27}, 27 wk with 42d and group W_{30}, 30wk with 32d, according to reproductive rhythm and age of females at first mating, respectively. The effect of breeding system on litter traits separately for both APRI and BB breeds. There were significant differences on litter size at birth, Individual litter weights at birth and weaning for APRI rabbits. Breeding system had affected significant on NSC and KI in APRI rabbits does. The parity had a significant effect on all LS traits in APRI line. Mean bunny weight at weaning was highest in W24 group during all parities in APRI rabbit line. In the BB rabbits breed the mean weight at weaning was lightest in W30 group comparing with W24 and W27 groups. The productivity at weaning in APRI rabbit line was the highest for W30 group (11.7 kg/year) and the lowest for group W24 (10.5 kg/Year). Productivity in Baladi Black rabbit breed showed that at weaning in W24 group was the highest values (9.20 kg/year) and the lowest for group W30(7.05kg/Year).

In conclusion, an early 1st mating (24 week) associated with an extensive reproduction rhythm (52 d) resulted in higher productivity (kg/year) at weaning in APRI line. An intensive reproduction rhythm (32 d) combined with a 1st mating at 30 weeks, for females of Baladi Black breed to improve their productivity (kg/year) at weaning.

Key words: Rabbits does, Postpartum, Re-mating interval, Hormones, Blood biochemicals, Litter traits, Weaning age, Reproductive performance, Milk yield, Body condition score, Ovary, Comet, Breeding system, Age at first mating, Individual litter weight, Mean bunny weight, Productivity, and Parity

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Finally, I wish to present this thesis to the memory of my parents and my husband and by little son Mohamed and my brother and sister.

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