EFFECT OF REMATING INTERVAL AND WEANING AGE ON SOME PRODUCTIVE TRAITS IN RABBIT

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ABSTRACT

The productivity of rabbits depends mainly on the number of young weaned per cage, which can be increased by maximizing the number of parturitions and minimizing the intervals between them, providing the size of litters as maintained. The aim of this study was therefore to investigate the effect of three different remating intervals as well as two different weaning ages on the productive traits (body weight, daily feed consumption, post weaning growth, mortality and viability. The experimental flock composed of six groups, each group consists of eight does of NZW Rabbit remated (1, 5, 10) days postpartum and weaned their kits at (25 and 35 d. of age). Does mated 5th day post-partum and their litters weaned at 35 days of age showed significant (p 0.05) higher body weights at different ages, higher RGR% and average daily gain. Does mated 1st day post partum and their litters weaned at 25 days of age showed inferior body weight through the whole experimental period.

INTRODUCTION

Rabbits are raised for a variety of reasons and are found virtually in every country. Keeping of rabbits for meat production has a great important for the developing countries. Rabbits have traditionally been raised by small farmers in these developing countries to cover the severe shortage in meat production due to the increase in human population. One of the most interesting principles in the management of farm rabbits is selection of the suitable time of mating after parturition especially under the intensive production system. Remating interval can be as short as one day after parturition. Farmers usually plan a remating interval of 1 to 2 days (intensive production), 7 to 14 days (semi-intensive) or 14 days on wards (extensive), and in general does with small litters are usually presented to the male immediately post partum, but most experiments have shown greater acceptance of the male but lower conception rate when does are mated immediately post partum. The present study was therefore carried out to investigate the effect of three different remating intervals as well as two different weaning ages on the productive traits including: preweaning growth (body weight, daily feed consumption), post weaning growth, mortality and viability.

MATERIALS AND METHODS

This study was conducted at the Rabbits Unit belonging to the Department of Animal Husbandry and Wealth Development, Faculty

of Veterinary Medicine Mansoura University during the period extended from September 2007 until June 2008.

Flock history and management:

The flock composed of 24 does and 5 bucks of mature New Zealand White Rabbits (NZW) weighing 3.0-3.5 kg and 5-6 months of age. All the experimental animals were reared under the same environmental conditions. Good ventilation and fresh air was also provided to reduce ammonia concentration in the house. The animals were handled according to the principles for care of animals in experimentation. Rabbits of all ages were fed commercial pelleted ration obtained from FOUDA Company.

Does and mating management:

Each doe was introduced to the buck's cage. Mating of the doe was executed two times to bucks of proven fertility. Doe, buck number and date of mating were recorded, then each doe palpated for pregnancy 14 days after service. For positively palpated does, the expected date of kindling is recorded, while, negatively palpated dose were remated. At 26^{th} or 27^{th} day of gestation, clean disinfected with some rice straw kindling box is provided for each doe's cage.

Experimental design:

The present work was planned to evaluate the effect of remating interval and weaning age on the productive traits in New Zealand White Rabbits (NZW). Before the beginning of this experimental study, all does were mated almost at the same date to test the reproduction performance of the foundation stock in their first parity. Next to the first parity, does were divided according to post partum interval of mating into three groups each of 8 does. Does in the first group were remated through the day following kindling, does in the second group were remated on 5^{th} day post partum and does in the third group were remated on 10^{th} day post partum. Moreover, each mating group was weaned at two different ages (25 and 35 days).

RESULTS AND DISCUSSION

Table (1) showed least squares means, standard errors and test of significance of differences among means of preweaning relative growth rate ratio (25 days) and preweaning relative growth rate ratio (35 days) due to the effect of remating interval, weaning age and their interaction. Remating interval, weaning age and their interaction had non significant effects on preweaning relative growth rate during the first 25 and 35 days of age (weaning age). During the first 25 and 35 days of age, the highest preweaning relative growth rates (64.64% and 72.83%, respectively) were obtained from does mated 5th day post-partum, then the relative growth rates of litters (61.34% and 71.54%, respectively) from does mated 10^{th} day post-partum, while the lowest relative growth rates of litters (61.24 and 70.00%, respectively) obtained from does mated 1^{st} day post-partum. Moreover, the highest preweaning relative growth rate of litters (62.58%) was obtained from does weaned at 25 days weaning age, while the lowest preweaning relative growth rate of litters (62.23%) obtained from does weaned 35 days weaning age. As interaction effect, the highest relative growth rates (65.54 and 72.83%) were obtained in does mated 5^{th} day post-partum with 25 and 35 days weaning age, respective-

ly, while the lowest relative growth rates of litters (60.86 and 71.54%) obtained from does mated 1st day post-partum and litters weaned at 25 and 35 days weaning age, respectively. These results were inagreements with **Chen et al. (1978), Rao et al. (1978), Romney and Johnson (1978), Benraz and Friend (1981), De Blas et al. (1981), Diwyanto et al. (1985), Fekete and Gipperl (1985), Toson et al. (1995), Azoz (1996) and Das et al. (2007)** they reported that weaning age affected non significantly on relative growth rate and delayed weaning age are preferable than early weaning.

Table (2) showed least squares means, standard errors and test of significance of differenees among means of relative growth rate ratio during the period from 6-8 and 8-10 weeks of age. Results indicated that remating interval, weaning age had significant effeets ($p \leq 0.05$) on relative growth rate during the period from 6-8 and 8-10 weeks of age, while the interaction had a significant effect ($p \leq 0.05$) from 6-8 weeks of age and non significant effect ($p > 0.05$) from 8-10 weeks of age. During the period from 6-8 and 8-10 weeks of age, the highest relative growth rates (44.28 and 33.86%, respectively) were obtained from does mated 5th day post-partum, then the relative growth rates of litters (42.77 and 32.89%, respectively) obtained from does mated 1st day post-partum, while the lowest relative growth rates of litters (33.82 and 30.82 %, respectively) obtained from does mated 10th day post-partum. Moreover, the highest relative growth rates of litters (42.36 and 33.26%, respectively) were obtained from does weaned at 35 days weaning age, while the lowest relative growth rates of litters (38.23 and 31.79%, respeetively) obtained from does weaned 25 days weaning age. For the interaction effect, the highest relative growth rates ratio were obtained from does mated 5th day post-partum with 35 days weaning age which average 48.94 and 35.61%, respectively, while the lowest relative growth rates of litters (33.58 and 30.02%, respeetively) obtained from does mated 10th day post-partum with 25 days weaning age. This may be agreed with the related figures of body weight at 6-8 weeks of age. These results were inagreements with Toson et al. (1995) as they reported that average daily gain (4-6 weeks) of rabbits produeed by does remated later after parturition were significantly lower than those of rabbits produced by does remated earlier after parturition.

Table (3) showed least squares means, standard errors and test of significance of differences among means of relative growth rate ratio due to the effect of remating interval, weaning age and their interaction during 10-12 and 12-14 and 14-16 weeks of age. Remating interval and interaetion had non significant effeet on the relative growth rate ratio ($p > 0.05$), while weaning ages had a significant effect ($p \leq 0.05$) from 10-12 and 12-14 weeks of age. From 10-12 and 12-14 weeks of age, the highest ratio were obtained from does mated 5th day post-partum which averaged 24.62 and 24.62%, respectively, then the relative growth rate of litters (21.73 and 17.85%, respectively) obtained from does mated 1st day post-partum, while the lowest relative growth rate of litters (22.61 and 17.78%, respectively) from does mated 10th day post-partum. For weaning age effeet, the highest relative growth rates of litters (26.53 and 19.36%, respectively) were obtained from does weaned at 35 days weaning age, while the lowest relative

growth rates of litters (19.44 and 17.04%, respectively) obtained from does weaned 25 days weaning age. For the interaction effect, the highest relative growth rates were obtained from does mated 5th day post-partum with 35 days weaning age which average 29.38 and 20.50%, respectively, while the lowest relative growth rates of litters (19.04 and 15.85%, respectively) obtained from does mated 10th day post-partum with 25 days weaning age. At 14-16 weeks of age weaning age only had a significant effect ($p \leq 0.05$) on growth rate ratio, while remating interval and interaction had non significant effects ($p > 0.05$). Results revealed that the highest relative growth rate ratio (16.09%) was obtained from does mated 5th day post-partum, then the relative growth rate of litters (15.21%) from does mated 10th day post-partum, while the lowest relative growth rate of litters (14.94%) obtained from does mated 1st day post-partum. For weaning age effect, the highest relative growth rate of litters (16.13%) was obtained from does weaned at 35 days weaning age, while the lowest relative growth rate of litters (14.69%) obtained from does weaned 25 days weaning age. As the interaction effect, the highest relative growth rate ratio (17.49%) was obtained from does mated 5th day post partum with 35 days weaning age, while the lowest ratio were obtained from does mated 10th day with 35 days weaning age (14.29%). These results were inagreements with **Partridge et al. (1984) and Mendez et al. (1986).**

Table (4) showed least squares means, standard errors and test of significance of difference for means of daily gain at the first 25 and 35 days of age due to the effect of remating interval, weaning age and their interaction. At 25 day and 35 days of age, both weaning age and interaction had non significant effects ($p > 0.05$), while remating interval had a significant effect ($p \leq 0.05$) on daily gain at the first 25 days of age and a non significant effect ($p > 0.05$) at 35 days of age. For 25 and 35 days of age, the highest average daily gain (47.34 and 55.55 g, respectively) were obtained from does mated 5th day post-partum, then the average daily gain of litters (42.18 and 54.33 g, respectively) from does mated 10th day post-partum, while the lowest daily gain of litters (37.05 and 47.56 g, respectively) obtained from does mated 1st day post-partum. For weaning age effect, the highest daily gain of litters (43.34 g) was obtained from does weaned at 25 days weaning age.As interaction effect, the highest average daily gain (48.41g) was obtained from does mated 5th day post-partum with 25 days weaning age, while the lowest ratio obtained from does mated 5th day with 35 days weaning age (36.94 g). For the group weaned at 35 days weaning age, the highest average daily gain (55.50 g) was obtained from does mated 5th day post partum with 35 days weaning age, while the lowest ratio (47.50 g) obtained from does mated 1st day with 35 days weaning age. These results were inagreements with **Azoz (1996).**

Table (5) showed least squares means, standard errors and test of significance of difference among means of the average daily gain during 6-8 and 8-10 weeks of age due to the effect of remating interval, weaning age and their interaction. Remating interval, weaning age and interaction had significant effects on average daily gain ($p \leq 0.05$) during

6-8 and 8-10 weeks of age. The highest daily gain was obtained from does mated 5th day post-partum (24.05g and 25.76 g, respectively) for 6-8 and 8-10 weeks of age, then the average daily gain of litters (23.15 and 24.69 g, respectively) from does mated 1st day post-partum, while the lowest relative growth rate of litters (18.38 and 23.65 g, respectively) from does mated 10th day post-partum. Moreover, the highest daily gain of litters (25.31 and 27.25 g, respectively) were obtained from does weaned at 35 days weaning age, while the lowest daily gain of litters (18.41 and 22.15g, respectively) obtained from does weaned at 25 days weaning age during 6-8 and 8-10 weeks of age. For interaction effect, does mated 5thday post-partum with 35 days weaning age had the highest daily gain (29.25 and 28.61 g, respectively), while the lowest daily gain (15.03 and 21.36 g, respectively) was obtained from does mated 10th day post-partum with 25 days weaning age. These results were inconsistent with Gallois et al. (2003-2004) and Azoz (1996) they showed that the body weights of rabbits weaned at 21 days were smaller (-9%) than these of rabbits weaned at 35 days between the ages of 28 and 49 days. Also, daily weight gains were significantly lower in early weaned rabbits until day 42 (-17%, P > 0.05), but not thereafter.

Table (6) showed least squares means, standard errors and test of significance of difference among means of the average daily gain during 10-12, 12-14 and 14-16 weeks of age weeks of age due to the effect of remating interval, weaning age and their interaction. Remating interval, weaning age, and interaction had non significant effects on the average daily gain (p>0.05) during 10-12 and 12-14 weeks of age. The highest daily gains were obtained from does mated 5th day post-partum (24.58 and 22.25 g, respectively) during 10-12 and 12-14 weeks of age, then the average daily gain of litters (23.75 and 22.14 g, respectively) from does mated 10th day post-partum, while the lowest relative growth rate of litters (20.84 and 22.11 g, respectively) obtained from does mated 1stday post-partum. Moreover, the highest daily gains of litters (24.05 and 22.68 g, respectively) were obtained from does weaned at 35 days weaning age, while the lowest daily gains of litters (22.07 and 21.66 g, respectively) obtained from does weaned 25days weaning age during 10-12 and 12-14 weeks of age. For interaction effect, does mated 5th day post-partum with 35 days weaning age had the highest daily gains (26.32 and 24.27 g, respectively), while the lowest daily gains (20.50 and 20.22 g, respectively) were obtained from does mated first day with 35 days weaning age during 10-12 and 12-14 weeks of age. These results were in agreements with Das et al. (2007) as they found that there was non-significant effect (p>0.05) of weaning age on post weaning average daily gain. At 14-16 weeks of age weaning age only had a significant effect of the average daily gain (p≤0.05) while remating interval and interaction showed non significant effects on the average daily (p>0.05). There were no difference among the three remated groups which averaged 22.10, 22.55 and 22.63 g for the three remated groups 1st, 5th, and 10th day post-partum, respectively. Moreover, the highest daily gain of litters (23.55 g) was obtained from does weaned at 35 days weaning age, while the lowest daily gain of litters (21.31 g) obtained from does weaned 25 days weaning age. As interaction

effect, the highest daily gain (25.10 g) was obtained from does mated 5th day post-partum with 35 days weaning ages, while the lowest daily gain of litters (20.01 g) obtained from does mated 1st day post-partum with 35 days weaning ages during 14-16 weeks of age.

Table (7) showed least squares means, standard errors and test of significance of difference of carcass cuts (forepart %, Intermediate % and hind part %) due to the effect of remating interval, weaning age and their interaction. Remating interval, weaning age and their interaction had ($p \leq 0.05$) significant effects on fore part and intermediate part percent and non significant effect ($p > 0.05$) on the hind part percent. The highest fore part, intermediate part and hind part percents (22.30, 20.20, 25.10% and 22.30, 20.19, 25.10% were obtained from does mated 5th and 10th day post-partum, respectively, while the lowest percents (19.10, 18.70 and 23.70%) for the three cuts were obtained from does mated 1st day post-partum, respectively. For the weaning age effect, the highest percent for the three previous cuts (22.6, 20.40 and 24.40%) were obtained from group of litters weaned at 35 days of age, respectively, while the lowest percents (19.9, 17.40 and 23.50%) for the three cuts obtained from group of litters weaned at 25 days of age, respectively. As interaction effect, the highest percents for the three cuts (26.20, 22.61, 26.40 and 26.19, 22.60, 26.39%) were obtained from does mated 10th and 5th day post-partum with 35 days weaning ages, respectively, while the lowest percents for the three cuts (18.10, 15.90 and 22.00) were obtained from does mated 1st day post-partum with 35 days weaning age, respectively.

On the basis of these results we can concluded that, does of the forth group (does mated 5th day post-partum and their litters weaned at 35 days weaning age) had the highest body weights, RGR%, average DG, carcass traits and shared with it the sixth group (does mated 10th day post-partum and their litters weaned at 35 days weaning age) in higher percentage of carcass traits.

• **Number of does are mated and litters weaned presented in Table (1).**

RI / WA	R1		R5		R10	
	Does	Litters	Does	Litters	Does	Litters
W25	4	99	4	92	4	138
W35	4	113	4	71	4	74

Productive traits: 1. Pre weaning growth: Weights were recorded at different ages from birth biweekly, till weaning (25 or 35 days of age) It includes: **a.** Body weight. **b.** Daily feed consumption. **c.** Relative growth rate (RGR). It was calculated according to **Brody (1945).** Relative growth rate = $\frac{W2-W1}{0.5(W2-W1)} \times 100$

W_1: body weight at the beginning of the period

W_2: body weight at the end of the period

2. Post weaning growth.

3. Mortality and viability.

Data handling and statistical analysis: All productive performance was statistically analyzed as: using Statistical Analysis System Package *(SAS, 2002.)*

The mathematical model: To analyze the effect of remating intervals and weaning ages on the studied traits in the present investigation, the following model was assumed.

$$X_{ijk} = \mu + R_i + W_j + (WR)_{ij} + e_{ijk}$$

Symbols in the model are defined as following:

X_{ijk} : is the observation on the rabbits.

μ : is an effect common to all rabbits in the population.

R_i : is an effect due to remating intervals; i = (i.e. 1 = 1st day post partum, 5 = 5th day post partum, 10=10th day post partum

W_j : is an effect due to weaning ages; j = (i.e. 1 = 25 days weaning age, 2 = 35 days weaning age.

$(RXW)_{ij}$: is an effect due to the interaction between remating intervals and weaning ages.

e_{ijk} : is a random element associated with the individual observation (e = is the residual effect for each observation).

Table (1): The effect of Remating Interval, Weaning Age and their Interactions (LSM ± SE) on Preweaning Relative Growth Rate at the first 25 and 35 days ٪ of age.

Traits	Preweaning Relative Growth Rate ٪							
Age period	Relative growth rate (25 days)				Relative growth rate (35 days)			
1. Remating interval. (RI)	N	Mean	±	S. E.	N	Mean	±	S. E.
a. 1st day after kindling.	22	61.24 a	±	3.25	11	70.00 a	±	3.43
b. 5th day after kindling.	32	64 .64 a	±	2.75	16	72.83 a	±	3.39
c. 10th day after kindling.	26	61.34 a	±	3.18	13	71.54 a	±	3.36
2. Weaning age. (WA)								
a. 25 days	40	62.58 a	±	2.53		——	–	——
b. 35 days	40	62.23 a	±	2.49	40	72.1 a	±	3.82
3. Remating interval and weaning age interaction. (RI XWA)								
a.1st day (RI)-25 days (WA)	11	60.86 a	±	4.70		——	–	——
b.1st day (RI)-35 days(WA)	11	63.75 a	±	3.90	11	——		——
c.5th day (RI)-25 days(WA)	15	61.63 a	±	3.90		——	–	——
d.5th day (RI)-35 days(WA)	17	65.54 a	±	4.50	16	——		——
e.10th day(RI)-25 days(WA)	13	61.36 a	±	4.50		——	–	——
f.10th day (RI)-35 days(WA)	13	61.31 a	±	4.50	13	——		——

Table (2): The effect of Remating Interval, Weaning Age and their Interactions (LSM ± SE) on Postweaning Relative Growth Rate ٪ at 6-8 and 8-10 weeks of age.

Traits	Postweaning relative growth rate ٪							
Age period	6-8 weeks				8-10 weeks			
1. Remating interval. (RI)	N	Mean	±	S. E.	N	Mean	±	S. E.
a. 1st day after kindling.	22	42.77 a	±	1.10	21	32.89 ab	±	0.83
b. 5th day after kindling.	31	44.28 a	±	0.96	31	33.86 a	±	0.99
c. 10th day after kindling.	25	33.82 b	±	1.13	23	30.82 b	±	0.94
2. Weaning age. (WA)								
a. 25 days	39	38.23 b	±	0.85	36	31.79 b	±	0.76
b. 35 days	39	42.36 a	±	0.89	39	33.26 a	±	0.70
3. Remating interval and weaning age interaction. (RI XWA)								
a.1st day (RI)-25 days (WA)	11	44.51 ab	±	1.42	10	32.56 a	±	1.22
b.1st day (RI)-35 days(WA)	11	44.06 ab	±	1.31	11	33.23 a	±	1.13
c.5th day (RI)-25 days(WA)	15	36.60 b	±	1.48	15	31.61 a	±	1.28
d.5th day (RI)-35 days(WA)	16	48.94 a	±	1.62	16	35.61 a	±	1.36
e.10th day(RI)-25 days(WA)	12	33.58 b	±	1.55	11	30.02 a	±	1.40
f.10th day (RI)-35 days(WA)	13	34.07 b	±	1.66	12	32.11 a	±	1.43

Table (3): The effect of Remating Interval, Weaning Age and their Interactions (LSM ± SE) on Postweaning Relative Growth Rate % at 10-12, 12-14 weeks of age and 14-16 weeks of age.

Traits	Postweaning relative growth rate (%)			
Age period	10-12 weeks		12-14 weeks	14-16 weeks
1. Remating interval. (RI)	N	Mean ± S. E.	Mean ± S. E.	Mean ± S. E.
a. 1st day after kindling.	19	21.73^{a} ± 1.08	17.85^{a} ± 0.49	14.94^{a} ± 0.37
b. 5th day after kindling.	24	24.62^{a} ± 1.25	18.98^{a} ± 0.42	16.09^{a} ± 0.33
c. 10th day after kindling.	22	22.61^{a} ±1.20	17.78^{a} ± 0.51	15.21^{a} ±0.40
2. Weaning age. (WA)				
a. 25 days	33	19.44^{b} ± 0.98	17.04^{b} ± 0.41	14.69^{b}±0.32
b. 35 days	32	26.53^{a} ± 0.94	19.36^{a} ± 0.37	16.13^{a}± 0.28
3. Remating interval and weaning age interaction. (RI XWA)				
a 1st day (RI)-25 days (WA)	9	24.04^{a} ± 1.58	17.82^{a} ± 0.76	15.11^{a}±0.59
b.1st day (RI)-35 days(WA)	10	19.42^{a} ± 1.47	17.45^{a} ± 0.59	14.68^{a}± 0.44
c.5th day (RI)-25 days(WA)	12	26.17^{a} ± 1.61	17.88^{a} ± 0.63	14.77^{a}±0.45
d.5th day (RI)-35 days(WA)	12	29.38^{a} ± 1.72	20.50^{a} ± 0.60	17.49^{a}±0.49
e.10thday(RI)-25 days(WA)	11	19.04^{a} ± 1.77	15.85^{a} ± 0.75	16.14^{a}±0.51
f.10thday (RI)-35 days(WA)	11	19.86^{a} ± 1.82	19.70^{a} ± 0.69	14.29^{a}±0.62

Table (4): The effect of Remating Interval, Weaning Age and their Interactions (LSM ± SE) on Preweaning Average Daily Gain (g) at the first 25 and 35 days of age.

Traits	Preweaning average daily gain (g)							
Age period	25 days				35 days			
1. Remating interval. (RI)	N	Mean	±	S. E.	N	Mean	±	S. E.
a. 1st day after kindling.	22	37.05^{a}	±	3.07	11	47.56^{a}	±	2.87
b. 5th day after kindling.	32	47.34^{a}	±	2.66	16	55.55^{a}	±	2.87
c. 10th day after kindling	26	42.18^{ab}	±	3.07	13	54.33^{a}	±	2.48
2. Weaning age. (WA)								
a. 25 days	40	43.34^{a}	±	2.40		——		——
b. 35 days	40	41.04^{a}	±	2.40	40	53.50^{a}	±	2.24
3. Remating interval and weaning age interaction. (RI XWA)								
a. 1st day (RI)-25 days (WA)	11	36.94^{a}	±	4.34		——		——
b.1st day (RI)-35 days(WA)	11	46.28^{a}	±	3.76	11	——		——
c.5th day (RI)-25 days(WA)	15	48.41^{a}	±	3.76		——		——
d.5th day (RI)-35 days(WA)	17	37.16^{a}	±	4.34	16	——		——
e.10thday(RI)-25 days(WA)	13	44.44^{a}	±	4.34		——		——
f.10thday (RI)-35 days(WA)	13	39.91^{a}	±	4.34	13	——		——

Table (5): The effect of Remating Interval, Weaning Age and their Interactions (LSM ± SE) on Postweaning Average Daily Gain (g) at 6-8 and 8-10 weeks of age.

Traits	Post weaning average daily gain (g)					
Age period	N	6-8 weeks			8-10 weeks	
1. Remating interval. (RI)		Mean ± S. E.		N	Mean ±	± S. E.
a. 1st day after kindling.	22	23.15^{a} ± 0.55		21	24.69^{a,b}	± 0.59
b. 5th day after kindling.	31	24.05^{a} ± 0.62		31	25.76^{a}	± 0.70
c. 10th day after kindling.	25	18.38^{b} ± 0.64		23	23.65^{b}	± 0.67
2. Weaning age. (WA)						
a. 25 days	39	18.41^{b} ± 0.49		36	22.15^{b}	± 0.53
b. 35 days	39	25.31^{a} ± 0.50		39	27.25^{a}	± 0.54
3. Remating interval and weaning age interaction. (RI XWA)						
a.1st day (RI)-25 days (WA)	11	21.35^{b} ± 0.81		10	22.16^{ab}	± 0.87
b.1st day (RI)-35 days(WA)	11	24.94^{ab} ± 0.74		11	25.94^{ab}	± 0.99
c.5th day (RI)-25 days(WA)	15	18.86^{bc} ± 0.84		15	22.92^{ab}	± 0.97
d.5th day (RI)-35 days(WA)	16	29.25^{a} ± 0.92		16	28.61^{a}	± 1.02
e.10th day(RI)-25 days(WA)	12	15.03^{c} ± 0.88		11	21.36^{b}	± 0.91
f.10th day (RI)-35 days(WA)	13	21.73^{b} ± 0.94		12	27.22^{ab}	± 0.80

Table (6): The effect of Remating Interval, Weaning Age and their Interactions (LSM ± SE) on Postweaning Average Daily Gain (g) at 10-12, 12-14 weeks of age and 14-16 weeks of age.

Traits	N	Post weaning average daily gain (g)		
Age period		10-12 weeks	12-14 Weeks	14-16 Weeks
1. Remating interval. (RI)		Mean ± S. E.	Mean ±S. E.	Mean ± S. E.
a. 1st day after kindling.	19	20.84^{b} ± 0.95	22.11^{a}±0.76	22.10^{a} ± 0.61
b. 5th day after kindling.	24	24.58^{a}±1.10	22.25^{a}±0.73	22.55^{a}±0.68
c. 10th day after kindling.	22	23.75^{a}±1.05	22.14^{a}±0.63	22.63^{a}±0.74
2. Weaning age. (WA)				
a. 25 days	33	22.07^{a}±0.86	21.66^{a}±0.55	21.31^{b}±0.52
b. 35 days	32	24.05^{a}±0.83	22.68^{a}±0.60	23.55^{a}±0.59
3. Remating interval and weaning age interaction. (RI XWA)				
a.1st day (RI)-25 days (WA)	9	21.18^{a}±1.39	22.48^{a} ±0.89	22.57^{a}±0.90
b.1st day (RI)-35 days(WA)	10	20.50^{a}±1.29	20.22^{a} ±0.94	20.01^{a}±0.83
c.5th day (RI)-25 days(WA)	12	24.64^{a}±1.42	21.79^{a}± 0.88	21.63^{a}±0.82
d.5th day (RI)-35 days(WA)	12	26.32^{a}±1.51	24.27^{a} ±1.13	25.10^{a} ±1.09
e.10th day(RI)-25 days(WA)	11	22.87^{a}±1.56	22.27^{a}±1.03	21.35^{a}±0.95
f.10th day (RI)-35 days(WA)	11	22.84^{a}±1.60	21.96^{a}±1.12	23.91^{a}±1.15

Table (7): The effect of Remating Interval, Weaning Age and their Interaction (LSM ± SE) on Fore part %, Intermediate part % and Hind part %.

Classifications		Carcass cuts		
		Fore part %	Intermediate part %	Hind part %
1. Remating interval. (RI)	N	Mean ± S. E.	Mean ± S. E.	Mean ± S. E.
a. 1st day after kindling.	10	$19.10^{ab} \pm 0.80$	$18.70^{ab} \pm 0.70$	$23.70^{a} \pm 0.11$
b. 5th day after kindling.	10	$22.30^{a} \pm 0.80$	$20.20^{a} \pm 0.70$	$25.10^{a} \pm 0.11$
c. 10thday after kindling.	10	$22.30^{a} \pm 0.90$	$20.19^{a} \pm 0.80$	$25.10^{a} \pm 0.11$
2. Weaning age. (WA)				
a. 25 days	15	$19.9^{b} \pm 0.70$	$17.40^{b} \pm 0.60$	$23.50^{A} \pm 0.90$
b. 35 days	15	$22.6^{a} \pm 0.70$	$20.40^{a} \pm 0.60$	$24.40^{A} \pm 0.90$
3. Remating interval and weaning age interaction (RI XWA)				
a.1st day (RI)-25 days (WA)	5	$21.60^{ab} \pm 0.11$	$19.00^{ab} \pm 0.10$	$24.60^{A} \pm 0.14$
b.1st day (RI)-35 days (WA)	5	$18.10^{b} \pm 0.11$	$15.90^{b} \pm 0.10$	$22.00^{B} \pm 0.14$
c.5th day (RI)-25 days (WA)	5	$21.00^{ab} \pm 0.13$	$18.40^{ab} \pm 0.11$	$22.80^{B} \pm 0.16$
d.5th day (RI)-35 days (WA)	5	$26.19^{A} \pm 0.13$	$22.60^{A} \pm 0.11$	$26.39^{A} \pm 0.16$
e.10thday(RI)-25 days (WA)	5	$19.90^{ab} \pm 0.13$	$17.40^{ab} \pm 0.11$	$23.80^{B} \pm 0.16$
f.10thday (RI)-35 days (WA)	5	$26.20^{A} \pm 0.13$	$22.61^{A} \pm 0.11$	$26.40^{B} \pm 0.16$

Means within the same category having different superscripts are significantly different at level ($p \leq 0.05$).

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الملخص العربى

تأثير فترة التلقيح وعمر الفطام على بعض الصفات الإنتاجية فى الأرانب

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أجريت هذه الدراسة فى عنابر الأرانب التابعة لقسم الرعايج وتنمية الثروة الحيوانية - كلية الطب البيطرى جامعة المنصورة خلال الفترة من سبتمبر ٢٠٠٧ إلى يونيو ٢٠٠٨، تكون القطيع الذى أجريت عليه التجربة من ست مجموعات كل مجموعة مكونة من ثمان أمهات من سلالة النيوزيلندى الأبيض قسمت تبعاً لفترة التلقيح وعمر الفطام بعد الولادة الأولى - المجموعة الأولى لقحت فى اليوم الأول بعد الولادة وفطمت صغارها عند ٣٥ يوم من العمر - المجموعة الثالثة لقحت فى اليوم الخامس بعد الولادة وفطمت صغارها عند ٢٥ يوم من العمر - المجموعة الثالثة لقحت فى اليوم الخامس بعد الولادة وفطمت صغارها عند ٣٥ يوم من العمر - المجموعة الخامسة لقحت فى اليوم العاشر بعد الولادة وفطمت صغارها عند ٢٥ يوم من العمر - المجموعة السادسة لقحت فى اليوم العاشر بعد الولادة وفطمت صغارها عند ٣٥ يوم من العمر. هدفت هذه الدراسة إلى معرفة تأثير فترة التلقيح وعمر الفطام والتداخل بينهما على بعض الصفات الإنتاجية والوراثية فى الأرانب والتى تشمل (وزن الجسم عند الأعمار المختلفة، معدلات النمو النسبية ومتوسط الزيادة اليومية) بالإضافة إلى صفات الذبيحة والتى قد تمت بذبح خمسة حيوانات من كل مجموعة عند وزن ٢كجم وزن حى وتم دراسة الآتى عليها (وزن الذبح، وزن الذبيحة الدافئ، نسبة التصافى، نسبة الذبيحة المبردة، قطيعات الذبيحة والتى تشمل الجزء الأمامى والأوسط والخلفى، وزن الأحشاء الداخلية).

وعلى أساس النتائج من الممكن أن نستخلص أن أمهات المجموعة الرابعة (والتى تم تلقيحها فى اليوم الخامس بعد الولادة وفطمت صغارها عند ٣٥ يوم من العمر) حققت أعلى معدلات لوزن الجسم، معدلات النمو النسبية، معدلات الزيادة اليومية، صفات الذبيحة واشتركت معها أمهات المجموعة السادسة (والتى لقحت فى اليوم العاشر بعد الولادة وفطمت صغارها عند ٣٥ يوم من العمر) فى التفوق فى صفات الذبيحة.