5. SUMMARY

A crossbreeding experiment was carried out during three consecutive production years started in September, 1993 in Maryout Experimental Station belonging to the Desert Research Center, Ministry of Agriculture and Land Reclamation, Egypt. This station is located in a newly reclaimed area 35 km to the south east of Alexandria. The experiment was conducted using Gabali (Egyptian local) and Californian (exotic) breeds with the aim of investigating and quantifying the effects of some non-genetic factors, mating or breed group, crossbreeding and heterosis in addition to maternal additive and direct additive effects on litter, doe reproductive, progeny and carcass traits. Results could be summarized as follows:

5.1. Litter traits

Actual means of litter traits (LSB, LS21, LSW, LWB, LW21, LWW, MBWB, MBW21, MBWW and PM) are within the ranges of the available literature. The CV% of these traits ranged from 10.4 to 60.1%.

Year of kindling, month of kindling and parity did not exert any significant effect on most litter traits. Parity did not show any consistent pattern of effect on these traits.

Most litter traits varied non-significantly with mating group. Differences between Cal and Gab rabbits were not significant for most of these traits and they were generally in favour of Cal rabbits. Crossbreeding between these two breeds resulted in negative heterotic effect on most litter traits.

Maternal additive effect was mostly non-significant but their contrasts were in favour of litters born by Cal does. Also, direct additive effect was mostly non-significant and in favour of litters sired by Cal breed.

5.2. Doe reproductive traits

Actual mean of NSC is relatively higher than those reported in the available literature while those of DO, KI and GL are lower than those cited from the previous research work. Estimates of CV% of NCS, DO and KI are relatively high.

Year-of-kindling effect was significant (P<0.01) on NSC and KI but not so on Do and GL. Both months of kindling and parity did not contribute significantly to doe reproductive traits of the study. Parity effect did not show any definable trend on NSC and DO but caused the increase of KI and GL with advance of parity order.

NSC, DO, KI and GL were found to be non-significantly influenced by mating group. The differences between Cal and Gab for these traits were also non-significant but in favour of Gab rabbits. Heterosis contrasts for NSC, DO and KI were positive but non-significant, i.e. crossbreeding in this work did not improve the performance of those three traits.

Maternal additive effect on doe reproductive traits was not significant and in favour of litters produced by Cal does. Also, the direct additive effect on these traits was not significant but in favour of litters sired by Gab bucks for NSC, DO and KI.

5.3. Progeny traits.

Actual means of weaning and post-weaning body weights and daily gain traits up to 16 weeks of age are within the ranges of the available literature while those of post-weaning livability traits up to 16 weeks are lower than their correspondings reported in the Egyptian research. Estimates of CV% ranged from 4.15 to 22.27% for body weight and daily gain traits and from 42.86 to 81.17% for livability traits.

Effect of year-of-birth was not significant on weaning and post-weaning body weight and daily gain but significant (P<0.01) on post-weaning livability up to 12 and 16 weeks of age. Month-of-birth contributed significantly (P<0.05, P<0.01 or P<0.001) to most body weight traits, post-weaning daily gain from eight to 12 weeks and to all post-weaning livability traits. Parity effect was non-significant on most body weight traits, significant (P<0.05, P<0.01 or P<0.001) on post-weaning daily gain from eight to 12 weeks and from four to 16 weeks of age and all post-weaning livability traits studied. Most body weight traits, daily gain from eight to 12 and 16 weeks of age and post-weaning livability up to 12 and 16 weeks of age were significantly (P<0.05 or P<0.01) influenced by sex.

Breed group constituted, in general, a significant ($P<0.05$, $P<0.01$ or $P<0.001$) source of variation in body weight and daily gain traits but a non-significant one in post-weaning livability traits. Linear contrasts showed the superiority of Gab over Cal rabbits for body weight at most ages studied, daily gain at all intervals of the study and post-weaning livabilities, all without significant differences. Crossbreeding between the two breeds of the study resulted in positive and significant ($P<0.05$,$P<0.01$ or $P<0.001$) heterotic effect on most body weight and daily gain traits and positive non-significant effect on post-weaning livability, i.e. crossbreeding has improved progeny traits in general.

Maternal additive effect was significant ($P<0.05$ or $P<0.001$) on most body weight and daily gain traits and non-significant on livability traits. Linear contrasts were in favour of rabbits produced by Gab does for body weight at most ages and daily gain at all intervals but in favour of those produced by Cal does for post-weaning livability up to eight and 12 weeks of age. Direct additive effect was significant ($P<00.05$ or $P<0.001$) on body weight and daily gain at most ages and stages, but non-significant on post-weaning livability up to eight, 12 and 16 weeks of age. . Linear contrasts were mostly in favour of rabbits sired by Gab bucks.

5.4. Carcass traits

Actual means of carcass traits of the study reveal that performance of rabbits for carcass traits increased with the increase of slaughter age from 12 to 16 weeks of age. CV% for different carcass traits ranged from 0.3 to 12.4% at 12 weeks and from 3.1 to 19.4% at 16 weeks of age.

Effect of year of birth was non-significant on all carcass traits at 12 weeks of age and on most carcass traits of the study at 16 weeks of age. Season of birth did not contribute significantly to the variance of all carcass traits at 12 weeks but significantly ($P<0.05$ or 0.01) to the variance of 50% of these traits at 16 weeks of age. Parity and sex did not show any significant effect on all carcass traits either at 12 or 16 weeks of age.

Breed group differences were significant ($P<0.05$, $P<0.01$ or $P<0.001$) on most carcass traits at either 12 or 16 weeks of age. Linear contrast

showed that Cal and Gab rabbits were significantly ($P<0.05$, $P<0.01$ or $P<0.001$) different for most carcass traits at 12 and 16 weeks and most of these differences were in favour of Gab rabbits. Crossing between Cal and Gab resulted in positive significant ($P<0.05$, $P<0.01$ or $P<0.001$) heterotic effect on most of these traits.

Maternal additive effect on most carcass traits at either 12 or 16 weeks of age was non-significant but in favour of rabbits damed by Gab does. Direct additive effect was significant on 50 and 42% of carcass traits at 12 and 16 weeks of age, respectively and in favour of rabbits sired by Gab bucks.