5. SUMMARY

This study was carried out at San El-Hager Agricultural Company, San El-Hager, Sharkya Governorate. Data, collected on 355 does and 1430 purebred litters produced by B, CAL and NZW rabbits during two successive years of production (1992&1993), were used to investigate some genetic and non-genetic effects on litter traits (litter size, litter weight and mean bunny weight per litter at birth, 21 days and at weaning at 30 days and gain in litter weight up to 21 days and up to weaning). Data were analyzed by the Mixed Model Least-Squares and Maximum Likelihood Mean Weighted program of Harvey (1990) and by using an Animal Model program (Single trait) of Misztal (1988). The most important results obtained could be summarized as follows:

5.1 Non-genetic factors

- Parity effects were found to be significant ($P<0.05$, $P<0.01$, $P<0.001$) on LSB in NZW rabbits; on LS21 in B and CAL rabbits; on LSW in CAL ones; on LG21 in B and CAL rabbits and on LGW in CAL ones. They were mostly significant ($P<0.05$, $P<0.01$, $p<0.001$) on LWB in B and NZW rabbits; on LW21 in B, CAL and NZW rabbits and on LWW in CAL ones. However, parity effects were mostly non-significant on mean bunny weight per litter traits in B, CAL and NZW rabbits.
- Year-season combination exerted significant effect ($P<0.05$, $P<0.01$ or $P<0.001$) on LSB, LW21, MBWB, LG21 and LGW in B and NZW rabbits; on LS21, LSW and MBW21 in B rabbits and on LWB and LWW in B, CAL and NZW rabbits.

5.2 Doe effect

- Doe expressed significant ($P<0.05$,$P<0.01$ or $P<0.001$) effect on all litter traits in B rabbits, on LWB and MBWW in CAL rabbits and on

LSB, LS21, LSW, LWB, LW21, LWW, MBW21 and MBWW on NZW rabbits.

- Estimates of percentages of doe variance component for doe litter traits using either Henderson 3 method or RMM method show low to moderate values. The ranges of these values were mostly higher when obtained by RMM than those reached by Henderson 3 method.
- Percentages of doe variance component calculated by using Henderson 3 method or RMM method are, in general, higher in B rabbits than in CAL and NZW ones. The CAL rabbits recorded the lowest estimates of percentages of doe variance component.

5.3 Common litter effect

- Common litter effect showed significant ($P<0.05$, $P<0.01$ or $P<0.001$) effect on litter traits in B and NZW rabbits except LW21 and LG21 in NZW rabbits. The significant ($P<0.01$) effect was detected on MBWW only in CAL rabbits.
- Percentages of variance component of common litter were low to moderate in values.

5.4 Repeatability

- Repeatability estimates obtained by either Henderson 3 method or RMM method were low or moderate, but the ranges of these estimates obtained by Henderson 3 method are smaller than those obtained by RMM method.
- Estimates of repeatability of all doe litter traits in B rabbits are higher than those in NZW and CAL rabbits by using either Henderson 3 method or RMM method.

5.5 Doe breeding value (DBV)

- Generally, ranges of all does and ranges of the top 30% does obtained by DM were higher than the corresponding ranges obtained by AM method in the three breeds of rabbits in this study.
- Percentages of does having positive estimates of DBV for doe litter traits in this study were mostly less than 50% either in DM or AM. At the same time these percentages were slightly larger when using AM than when using DM method.
- DBV, in general, was found to increase as age of the litter advanced from birth up to weaning.
- In general, the two ranges of breeding value of all does and the top 30% does were higher in B rabbits followed in a descending order by NZW and CAL rabbits either when using DM or AM methods.