5. SUMMARY

This study was carried out through two trials at the Animal Experimental Farm, Faculty of Agriculture at Moshtohor, Zagazig University, Banha Branch. In the first trial, 30 ewes from Ossimi, Rahmani and Ossimi-Rahmani crosses were used in this study to investigate the effects of breed group and parity on body weight, body measurements and wool characteristics of ewes.

Studies on growth efficiency and wool traits were performed on male and female lambs of three breed groups from birth to yearling to investigate the effect of breed group and sex factors on growth performance and wool traits. In the second trial, a fattening experiment was carried out using castrated and un-castrated Ossimi and Ossimi-Rahmani crossbred lambs to study carcass traits and constructing predition equations of carcass traits from body weight and measurements of male lambs at different ages. The most important results obtained could be summarized as follows:

5.1 Growth Traits (body weight, daily gain and body measurements:

1. The differences among means of body weight of Ossimi, Rahmani and Ossimi-Rahmani crossbred lambs at birth, 2, 4 and 6 months of age were statistically non-significant. However, at 8, 10 and 12 months of age, Ossimi lambs were significantly heavier than Rahmani and crossbred lambs. The differences in body weight due to breed-group effect were non-significant at birth, 2, 4 and 6 months of age

and significant at 8, 10 and 12 months of age.

The coefficients of variation of lamb's body weight slightly differed.

Ossimi ewes were significantly heavier than Rahmani and the crossbred ones were inbetween them. Differences in body weight of ewes due to breed group and parity were non-significant. Males were heavier than females at birth, 2, 4, 6, 8, 10 and 12 months of age and the differences were highly significant ($P < 0.0001$).

2. The averages of daily gain decreased gradually from birth to yearling in the three breed groups. During the periods from 2-4, 4-6, 6-8 and 8-10 months of age, Ossimi lambs grew better than the other two breed groups. Differences due to breed-group effects, with respect to daily gain for the intervals 0-2, 2-4, 4-6, 6-8, 8-10 and 10-12 months of age proved to be non-significant except the interval 4-6 months of age which proved to be significant ($P < 0.05$). The coefficients of variation of lamb's daily gain for the three breed groups at each of age were nearly the same.

Male lambs gained more than females during the pre-weaning and post-weaning stage, the differences were highly significant ($P < 0.01$ and $P < 0.0001$).

3.a. Differences in body length due to breed-group effect were non-significant at 2, 4, 6, 8, 10 and 12 months of age, while sex effect was highly significant at all these ages and males exceeded females in this character.

b. Differences in height at weithers due to breed-group effect were non-significant at all ages, except at 2 and 12 months of age. Sex effect was highly significant at all ages and males exceeded females in height at withers.

c. Differences in each of heart girth, chest width and chest depth due to breed group effect were highly significant ($P< 0.01$ and $P< 0.001$) at all ages, except at 2 months of age. The Ossimi lambs had relatively higher heart girth, chest wigth and chest depth than other two breed groups at all ages, except at 2 months of age. Sex effect was significant ($P< 0.05$ & $P< 0.0001$) at all ages, while the interactions between breed group and sex were almost non-significant.

d. Differences in thigh circumference due to breed-group effect were highly significant ($P< 0.01$ and $P< 0.001$) at 4, 6 and 8 months of age only. Ossimi lambs had higher thigh circumference than Rahmani and cross lambs. Sex effect was hihgly significant at all ages except at 2 months of age as males exceeded females in this character. The interactions between breed groups and sex were highly significant ($P< 0.01$) only at 8 and 10 months of age.

e. Differences in cannon circumference due to breed-group effects were highly significant ($P< 0.01$) only at 8 months of age. Ossimi lambs had higher cannon circumference than the other two breed groups. Sex effect was almost highly significant at all ages as males exceeded females in this character.

f. Differences in heart girth and chest width of the sdult ewes due to breed-group effect were significant and Ossimi ewes exceeded the other two breed groups in these two dimensions, while Rahmani and crossbred ewes were nearly the same.

4. At all ages, from 2 up to 12 months, live body weight was highly significantly correlated with daily gain and seven body measurements. The coefficients of correlation between daily again and each of body measurements at 2 months of age were mostly high while at and after weaning, the coefficients were generally moderate and high. Body length was possitively highly correlated with each of heart girth and height at withers at all ages, and was highly correlated with chest at pre-weaning. At 2 months of age, high possitive coefficients of correlation were obtained between (HW) and each of HG and CW, while the coefficients of correlation between HW and each of CD, TC and CC were moderate. At 2 months of age, positive coefficient of correlation was obtained between HG and CW. At 4 months of age high coefficients were obtained between HG and each of CD and TC, while at 6, 8, 10 and 12 months of age, all the coefficients between HG and each of CW, CD, TC and CC were high. At all ages except at 4 months of age, the coefficients of correlation were almost high and possitive between CW and each of CD, TC and CC. At all ages the coefficients of correlation were almost high and possitive

between CD and each of TC, CC. The coefficients of correlation between TC and CC at post-weaning till yearling were high and possitive.

5.2. Wool Traits:

1. Differences in the first grease fleece weight due to breed-group effects were highly significant. The average grease fleece weight at yearling of each of Rahmani and the Ossimi-Rahmani crossbred lambs was significantly more than that of Ossimi lambs and the differences in fleece weight between Rahmani and the crossbred were non-significant. The average of grease fleece weight of adult Rahmani ewes was significantly more than each of the other two breed groups (Ossimi and crossbreds) and the differences due to breed-group effect on fleece weight were highly significant. The fleece weight of the three breed groups showed that the yearling lambs produced heavier greasy fleece weight than the adult ewes.

   Male lambs recorded heavier weight for the first greasey fleece than females and the differences between male and females were highly significant.

   The regression of greasey fleece weight on age of ewe was 13 gm/mth. which indicate significant effect of age on greasey fleece weight.

2. Rahmani lambs and ewes exceeded significantly in clean wool % both the other two breed groups.

Sex of lambs was found to have highly significant effect on clean wool percentage at all ages and males recorded higher percentage than females.

3- Fleece of Ossimi lambs contained more innercoat fibers than the other two breed groups and that of Rahmani and the crossbred lambs had higher percentages of outercoat and kemp fibers. Differences among breed groups due to innercoat, outercoat and kemp fiber percentage were highly significant.

Comparisons among fiber type ratios of the breed groups of the adult ewes showed that Ossimi and crossbred fleeces had nearly similar innercoat and outercoat percentages, which were significantly higher than the percentages of Rahmani ewes. Rahmani ewes had markedly higher kemp percentage than the other two breed groups. Differences due to breed groups among innercoat and kemp percentages were highly significant while those among outercoat percentages were non-significant.

Sex effect from 2 to 12 months of age of lambs had no significant contribution to variation of wool component ratios. The effect of interaction between breed-group and sex proved to be significant in case of outercoat and kemp percentages. The highest proportion of the innercoat fibers for the three breed-groups was attained at pre-weaning age and percentages of the three breed groups were found to decrease as age advanced, while percentages of outercoat and kemp were found to increase.

4. The averages of fiber diameter at 2, 4, 6, 8 and 10 months of age, for Ossimi males and females, were less than the averages of fiber diameter of Rahmani males and females and the averages of fiber diameter of crossbred did not show a particular trend. The differences in averages of fiber daimeter between males and females showed a slight effect of sex on fiber diameter. The average of fiber diameter increased with advancement of age.

   The averages of fiber diameter medullated of Ossimi lambs at 2 months of age, were less than the averages of Rahmani lambs, while at 4 and 6 months of age the averages were nearly the same but at 8 , 10 and 12 months of age, Ossimi exceeded Rahmani.

   The averages of medulla diameter and medulla percentages in male Ossimi fibers at all ages were less than medulla and percentages of Rahmani males. The opposite trend was observed in female lambs with respect of medulla diameter.

   The crossbred male and female lambs did not show a definite tendency in medulla diameter and medull percentage. The Rahmani ewes had the highest average fiber diameter (Total, non-medullated and medullated) compared with Ossimi and crossbred ewes, while the crossbred ewes were intermediate between the other two breed groups.

5. The averages of staple length of Rahmani and cross lambs were almost similar and exceeded the average staple length of Ossimi lambs. Male lambs proved to have longer staple

b. Body length may be used with high accuracy at 8 and 10 months of age for predicting carcass length and with adequate accuracy for predicting lean % of L.D.

c. Heart girth of lambs at 6 and 10 months of age and chest depth at 8 months of age may be used for predicting fat % of L.D. with satisfactory accuracy .