5. SUMMARY

The experimental work of this study was carried out on Ossimi and crossbred (1/2Ossimi×1/2Rahmani) male lambs at Moshtohor experimental farm, Faculty of Agriculture, Zagazig University (Banha Branch).

At three months of age (weaning) twenty five Ossimi male lambs and twenty one crossbred (Ossimi × Rahmani) male lambs were chosen randomly from the sheep flock and were divided into three groups. The first group, which consists of seven Ossimi lambs and six crossbred lambs, were fed fattening ration for three months and slaughtered at 6 months of age, meanwhile the rest lambs were fed normal growing ration. The second group, which consists of eight Ossimi lambs and six crossbred lambs were fed fattening ration for three months from 6-9 months of age, also and slaughtered at 9 months of age. The third group consists of the rest lambs fed fattening ration from 9-12 months of age and slaughtered at 12 months of age.

Body weights, daily live body weights and their changes during the three age stages, efficiency of feed conversion, carcass evaluation and chemical and physical meat traits were subjected to present investigation. The results could be summarized as follows:

1. Body weights and daily gain from 3 months to yearling of lambs subjected to 3 fattening periods:-

The averages of initial and final live body weights at the three fattening periods were 19.42 and 28.11, 31.73 and 37.38, 36.89 and 43.66 kg, respectively. Crossing Ossimi rams with Rahmani ewes was not associated with increasing body weights of crossbred lambs relative to Ossimi lambs. The differences between body weights, due to the effect of different ages at period of fattening, were significant ($P<0.001$), while due to breed-group effect were non-significant.

The average rates of daily gain increased gradually by ageing in three fattening periods. The differences between averages of daily gain, due to age (periods of fattening) and breed-group and the interaction between them were non-significant.

2. Feed consumption and feed conversion:-

The amount of feed consumed and values of feed conversion increased gradually and significantly with advancing of age, and values of feed conversion were more for Ossimi than for crossbred lambs, however the differences between values consumed and converted, due to breed-groups effect, were non-significant.

3. Body dimensions just before slaughtering:-

All body dimensions increased significantly by ageing ($P<0.01$), ($P<0.001$), while due to breed-groups effect, differences among all dimensions were non-significant. crossbred lambs had slightly higher dimensions than Ossimi lambs.

At 6, 9 and 12 months of age of lambs averages of condition score were 2.94, 3.74 and 4.38 of body length were 64.74, 64.69 and 72.27 cm, of height at withers were 55.00, 63.00 and 62.72 cm, of heart girth were, 68.29, 79.56 and 83.49 cm, chest depth were 25.06, 26.63 and 29.50 cm, of chest width were 17.42, 18.79 and 21.27 cm, and of width at hind quarter were 19.95, 21.00 and 24.29 cm, respectively.

4. Carcass traits:-

a-Fasting weight (slaughter weight):

The averages of slaughter weights increased by ageing and the differences among them were significant ($P<0.001$). The average of slaughter weight of Ossimi lambs was lower than the average of crossbred lambs and the differences between weights, due to breed group and the interaction between breed-group and age effect were non significant.

b-Carcass dimensions and scores:

Averages of carcass hind quarter circumference, of lambs increased at 9 months compared with 6 months and decreased significantly ($P<0.01$) at 12 months of age. Averages of carcass width, carcass length and subcutaneous fat score increased at 12 months of age. While carcass conformation score differed insignificantly from 6 to 12 months of age. Differences in carcass length, width of shoulder and hind quarter circumference caused by the effect of age, breed-group and the interaction between them, were statistically significant ($P<0.001$, $P<0.01$, $P<0.05$) except the effect of interaction on hind quarter circumference. The differences in carcass conformation score and subcutaneous fat score, due to the same factors, were statistically non significant.

c-Hot carcass weight:

The hot carcass weights decreased at 9 months compared with 6 months and then increased at 12 months of age. The differences among weights due to age and breed-group effect were statistically significant ($P<0.001$) while due to the interaction between these two factors, the differences were non significant, however most of the values related to Ossimi lambs were slightly higher than the values related to crossbred lambs.

d-Dressing percentage:

Dressing percentage decreased at 9 months compared with 6 months and then increased at 12 months of age. The differences among dressing percentages, due to age effect, were significant ($P<0.001$), while the effect due to breed-group and the interaction between these factors, were non significant.

e-Prime and second cuts:

The percentages of prime retail cuts, including round, rack, shoulder increased gradually from 6 to 12 months of age and significantly ($P<0.001$) with round cut% at 12 months and non significantly with shoulder and rack cuts. While loin cut percentages decreased gradually and also significantly at 12 months compared with 6 months of age. The prime cuts percentages formed from 69.9 at 6 months to 73.90 at 12 months and the differences between these values, due to age effect, were significant ($P<0.05$). The largest cut percentages were loin cut. Percentages of shoulder were slightly higher than rack percentages.

The average percentages of total prime cuts of Ossimi carcasses (72.10%) were slightly and unsignificantly higher than average percentages of crossbred carcasses (71.80%) and consequently the differences between percentages of total prime cuts, due to the interaction between Ossimi bred-group and age were non-significantly.

Percentages of second retail cuts including flank, tail and brisket cuts decreased gradually from 6 to 12 months of age and non-significantly with flank and significantly with brisket and tail ($P<0.01$), while percentages of neck cut unisignificantly increased. The total second cuts percentages formed, in descending order, from 29.00 at 6 months to 25.90 at 12 months of age, and the differences between these values, due to age effect, were significant ($P<0.01$). The largest cut percentages were the tail while the smallest cut percentages were flank cut.

The average percentage of brisket cut of crossbred carcasses were the only cut significantly ($P<0.01$) higher than the corresponding cut in Ossimi carcasses.

f-Carcass physical composition:

1. Lean, fat and bone percentages in 9, 10 and 11th ribs:

The differences between percentages of each of lean, fat and bone percentages in 9, 10 and 11th ribs, due to the effects of slaughter age, breed-group and the interaction between them were non-significant. Due to age slaughter age effect, from 6 to 12 months of age, the percentages of lean and bone decreased, and fat increased.

Due to breed-group effect, crossbred carcasses contained more lean and less fat and bone than Ossimi carcasses. The effect of interaction between slaughter age and crossbreds was at 6 months obvious on lean, fat and bone percentages.

Fat thickness on ribs was more, at 12 months, than the other months (6 and 9 months)and on Ossimi than in crossbred carcasses, however the differences were non-significant.

The ratio of lean/fat decreased at 9 months and then increased again at 12 months, while the both ratios lean/bone and lean+fat/bone increased at 9 months and then decreased at 12 months of age. The three ratios were higher ($P<0.05$) in crossbred than Ossimi carcasses. The differences between ratios, due to the effect of the two factors studied were non-significant.

The percentage of meat (muscle and fat) rises from 6 to 9 months and then decreased at 12 months of age while the percentages of bone decreases from 6 to 12 months of age.

2. Index and area of longissumus dorsi:

Indices and areas of longissumus dorsi decreased gradually from 6 to 12 months of age. The averages of indices and areas of L. dorsi of Ossimi carcasses were higher than crossbred carcasses. The differences between these values, due to slaughter age and breed-groups and the interactions between them, were non-significant, however differences between the

percentage than Ossimi lean-meat. The differences between percentages of moisture, protein, fat and ash, due to age effect, were significant (P<0.001). Due to breed-group and the interaction between age at slaughter and breed-group effect, the significant was in fat percentage only (P<0.01 &P<0.05).

h. Percentages of body offals and internal organs:

The percentages of head, legs, kidneys fat, lungs & tracheas increased gradually from 6 to 12 months of slaughter age, while percentages of heart, kidneys, liver, spleen decreased from 6 to 9 months and increased at 12 months. Most of percentages of belt, digestive tract empty and internal fat decreased from 6 to 12 months, while tests percentages remain constant.

Percentages of offals and internal organs of Ossimi lambs were higher than crossbred lambs in belt, head, legs, tests and internal fat and were lower than crossbred in digestive tract empty, liver, heart, and kidneys fat, and were nearly equal in percentages of kidneys, lungs, trachea and spleen.

The differences between percentages of belt, legs, heart, kidneys, liver, spleen, due to slaughter age effect were significant (P<0.01 & P<0.001). While due to breed-group effect, the significance was in percentages of spleen and testes only. The effect of interaction between slaughter age and breed-groups was significant with percentages of belt, head, liver, spleen and tests (P<0.05, P<0.01).

5. The linear and quadratic regression for the prediction equations of carcass traits at 9 months of age: Chest depth may be used for predicting shoulder cut percentage (P<0.05), width at hind quarters for predicting rack cut percentage (P<0.001), body length for predicting round cut and tail percentage (P<0.001). In addition to that the quadratic regression for the prediction equations revealed also that chest width may be used for predicting rack cut percentage (P<0.01).