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# The Effect of Breed , Level of Feeding , Age and Slaughter Weight on Performance and Carcass Traits of Lambs .

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FIFTY two male lambs of different genotypes , Ossimi (0) and three crosses with ossimi ; 1 / 2 (0) 1 / 2 (S) ; (Saidi , S) 1 / 2 (0) (S) were used in this study. The study was conducted in the farm of Animal production Department , Minia university during the period from jan 1988 to febr. 1989 . Lambs were slaughtered at 10 or 12 months of age Data were analyzed to investigate the effect of breed, level of feeding , age and weight at slaughter on feed efficiency, daily gain and some carcass traits .

Breed group , level of feeding and age at slaughter had significant effects (P<0.01) on feed efficiency and daily gain of lambs, except the level of feeding which had no significant effect on daily gain . The first crosses (1/ 2 0 1/ 2 B and 1/ 2 0 1/ 2 S ) lambs were more efficient in feed utilization and grow faster than ossimi and 1/ 2 0 1/ 4 B 1/ 4 S. Feed efficiency and daily gain were positively regressed on slaughter weight (P< 0.01 and 0.05) respectively .

The effect of breed, level of feeding on carcass weight, fast and empty dressing % and boneless meat % were non-significant, except the effect of breed on boneless meat % which was significant (P<0.05) Age at slaughter had a significant effect on these above traits (P< 0.05 or 0.01). The F ( 1/ 2 0 1/ 2 B) had the highest carcass traits values (49. 5 , 56 . 2 and 78 . 3 % for fast and empty dressing % and boneless meat % , respectively carcass traits were significantly regressed on slaughter weight .

Breed , level of feeding and age at slaughter had no significant effects on tail fat or total dissected fat (tail , Kedney and bowel fats) However , Ossimi lambs tended to have more fat than the other genotypes studied. Tail fat and total dissected fat were positively regressed on slaughter weight. This relationship was significant (P< 0.01) and equal to 0.12 and 0.13 Kg / Kg respectively .

Differences in chemical composition of the ribs 9, 10 and 11 due to breed, level of feeding and age at slaughter were not significant , except the effects of breed and level of feeding on protein % which were significant (P<0.01). Regression coefficients of chemical

compoition on slaughter weight were not significant. This relationship was positive with protein and fat % while it was negative with moisture and ash %.

**Key words :** Lambs, Slaughter weight, Percormance, Carcass traits.

The sheep industry is being advised to increase lamb production efficiency and lamb products availability by increasing slaughter weights of market lambs. Crossbreeding is a recognized method of combining traits of two or more breeds for the purpose of improving performance. Analysis of the composition and quality of certain carcass characteristics would provide information on breeds that can be employed efficiently in a crossbreeding program. Most of the carcass data collected has involved with ossimi, Saidi, ossimi x Barki and ossimi x 1/2 Barki 1/2 Saidi.

The influence of nutrition on the production of meat animals is evident, carcass protein levels have been shown to increase linearly with increasing dietary protein while, etherextract percentage of the carcass decreases (Andrews and Oskov, 1970 and Howes 1970 ). Increasing energy level also tends to increase fat deposition (Cartwright *et al* ., 1958). Also carcass traits and composition were influenced by weight and age at slaughter (Moody *et al*., 1970).

The objectives of this study were to examine the effects of breed of lambs, level of feeding, age and weight at slaughter on feed efficiency, daily gain and some carcass traits of lambs.

## Material and Methods

Fifty two male lambs were used in this study. These lambs were born in january - February 1988 at the farm of Animal production Department, Faculty of Agriculture, El-Minia University. They belonged to four genotypes, Ossimi (0), 1/2 0 1/2 S (Saidi, S), 1/2 0 1/2 B (Barki, B) and 1/2 0 1/4 B1/4 S . These crosses were produced by mating ossimi rams to saidi, Barki and 1/2 B 1/2 S ewes. Lambs were weaned at 120 days of age. After weaning, the animals grazed Berseem (*Trifolum alexandrinum*).

In summer, They grazed the field grasses, crop residues and they were fed daily a average of 0. 5 Kg of concentrate mixture per head. Bean straw was given ad libitum to the animals during the summer. The lambs were 7 - 9 months old with on average body weight of 24 . 5 -31. 6 Kg for the two age groups, respectively, at the start of the experiment.

The animals were then randomly alloted into two groups. The first group was

given 100 % of the fattening requirements according to Morrison (1956) , while the second group was given 80 % of the Morrison requirements. They were fed on concentrate mixture (63.7 % total digestible nutrients , TDN and 13 % digestible protein DP) and bean or wheat straw through the fattening period (12 weeks before slaughter) . Each group was managed and reared in a barn. They were fed and watered twice a day and were weighed weekly during the fattening period .

Twenty six of these lambs underwent the slaughter traits experiment. Half of lambs were slaughtered as the group reached 10 months of age (about , 38 Kg) , While the other lambs were slaughtered at 12 months of age (about , 44Kg). The lambs were fasted for 18 hr . Prior to slaughter and live weight was recorded. After bleeding they were weighed and the dressed carcass was split into two equal sides. The right side was cut according to the the English method of cutting mutton and lamb (Gerrard , 1953) . The cuts were weighed and dissected to determine the meat to bone ratio. The fasting and empty dressing % and boneless meat % were computed. Fat thickness over the eye mucle was calculated as was the average of the fat thickness at both 9*th* and 11*th* ribes of the right side .

For chemical analysis , the components of 9, 10 and 11th ribs ( Lean + fat ) were placed in during oven at 60°C . for 48 hours to determine moisture after a constant weight was reached samples from the mixture were analyzed according to AOAC (1970) to determine moisture , ether extract , crude protein and ash .

Data of each trait were analyzed by the least squares procedure for analysing the data with unequal subclass numbers described by SAS (1982). The following model was used .

$$Y_{ijkl} = U + B_i + F_j + A_k + (BF)_{ij} + b\,(X_{ijkl} - X_{ijkl}) + e_{ijkl}$$

Where : -

$Yijkl$ = an observation of performance or carcass traits

$U$ = a common element to all individuals ;

$B_i$ = the effect due to i th breeding group , i = 1, 2, 3 , 4 ;

$F_j$ = the effect due to jth system of fattening J = 1 ( 100 %) , 2 (80 % ) ;

$A_k$ = the effect due to kth age at slaughter , K =1 (10 months ) , 2(12 months) ;

$(BF)_{ij}$ = the effect due to interaction between breed and system of fattening;

$b\,(X_{ijkl} - X_{ijkl})$ = regression coefficient of performance or carcass traits on slaughter weight;

$X_{ijkl} - X_{ijkl}$ = the deviation of the body weight from its mean;

$e_{ijkl}$ = random errors associated with the individual observation .

Factors under investigation were assumed to be fixed ,except the error term which was asumed to be random and normally distribuated ($0.0^2$ e ) .

significant differences among sub-classes were detected using Duncan `S multiple range test ( Duncan 1955) .

## Results and Discussion

*Feed efficiency and daily gain*

Least squares means of feed efficiency, daily gain and tests of significance are presented in table 1. Significant differences in feed efficiency and daily gain were detected between the genotypes studied. The first crosses ( 1/ 2 0 1/ 2 S and 1/ 2 0 1/ 2 B) lambs were more efficient in feed utilization than ossimi and 1/ 2 0 1/ 4 B 1/ 4 S lambs (Table 1). This may be a result of the higher daily gains of these crosses (17 1.0 and 165.5 vs . 145 .2 g . for 1/ 2 0 1/ 2 S , 1/ 2 0 1/ 2 B and ossimi, respectively ). shatskil *et al* . (1977) found that the daily gain of precoce , Romanov , precoce x Romanov and Romanov x precoce , averaged 118 , 78 , 140 and 112 g through the fattening period , respectively . Consumption of Kg feed / one Kg gain was 10.0 , 14.4, 9.0 and 11.0 Kg, respectively. These figures reflected the potential genetical variation among different genotypes .

Lambs fed on 80 % of Morrison requirements were more efficient in feed utilization than lambs fed on 100 % of Morrison requirements (4.63 vs 5.89 Kg TDN / Kg gain ). However, the average daily values showed no significant differences ($P < 0.05$ ) between two groups and the final body weights were almost similar in the two treatments (41. 0 vs. 40.5 Kg ). It is clear from the esults that efficiency of food utilization increased , as feed offered was restricted from 100 % to 80 % of the requirements. This may be due to higher amount of feed consumed by the lambs fed on 100 % of Morrison requirements. These results agree with the view of EL-Ashry *et al.* (1985 ). They reported that animals which recieved moderate level of feeding were more efficient in feed utilization at the different experimental intervals than those which recieved the high level. Also, { Mc Donald *et al* ., (1982) } on beef cattle and colucci *et al* . (1989) on sheep , who reported that an increase in the level of feeding of requirements cause an appreciable reduction in the digestibility of thier food and hence in its metabolizable energy value.

Efficiency of feed utilization ( Kg TDN / Kg gain ) of the first group ( Slaughtered at 10 months of age ) was higher than that in the second group ( Slaughtered at the age

of 12 months). The same trend was obvious with the daily gain during fattening period , which the first group was higher than that of the second group (160.8 vs . 147.3 g .) the differences between two groups in feed efficiency or daily gain were significant (P< 0.01) (Table 1) . Similar results were reported by sents *et al* ., (1982). They observed that the feed to gain ratio was increased with the advance of age at fattening. Since the fat deposition in animal body was increased with the advance of age .

**TABLE 1. Least squares means, regression coefficients and statistical significance for factors affecting feed efficiency and daily gain.**

| Classification | No. | Feed efficiency | Daily gain (g) |
|---|---|---|---|
| | | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. |
| Overall mean | 52 | 5.26 + 0.16 | 154.1 + 3.9 |
| Breed group : | | ** | ** |
| Ossimi (O) | 12 | 5.51 + 0.34 ab | 145.2 + 8.4 ab |
| 1/2 O 1/2 S | 16 | 4.83 + 0.28 b | 171.0 + 7.1 a |
| 1/2 O 1/2 B | 8 | 4.61 + 0.42 b | 166.5 + 10.7 ab |
| 1/2 O 1/4 B 1/4 S | 16 | 6.08 + 0.82 a | 133.6 + 7.1 b |
| Level of feeding : | | ** | NS |
| 100 % | 26 | 5.59 + 0.23 | 152.6 + 5.8 |
| 80 % | 26 | 4.63 + 0.23 | 155.5 + 5.8 |
| Age at slaughter : | | ** | ** |
| 10 (mo.) | 28 | 5.01 + 0.27 | 160.3 + 6.7 |
| 12 (mo.) | 24 | 5.50 + 0.28 | 147.3 + 6.9 |
| Regression of carcass traits on slaughter wt. | | * -0.01 + 0.05 | ** 4.77 + 1.2 |
| Intercept | | 10.51 + 2.10 | -82.38 + 53.6 |

** = P<0.01 * = P<0.05 NS = not significant
O = Ossimi B = Barki S = Saidi
Multiple range test(Duncan, 1955), values within each category having common letters are not significantly different (P<0.05).
The same notations are followed in similar tables.

*Carcass traits*

The differences between ossimi and its crosses with saidi or Barki in carcass weight and fast ( based on fast live body weight ) and empty ( based on empty body weight ) dressing % were not significant , while differences for boneless meat % were significant ( P< 0.05 ) ( Table 2 ). Ossimi lambs had the highest fasting dressing percentage , while 1/ 2 O 1/ 2 S had the lowest (49.8 vs. 48.5 5). While for the empty dressing and boneless meat percentages , the F1 crosses ( 1/ 2 O 1/ 2 B ) had the highest values (Table 2). Similar trend was observed by El-Amin ( 1976) who

found that at 8 and 12 months of age, the dressing percentage was higher for ossimi than that of Bahmani or their crosses. Galal *et al* ., (1975) , . Iloyd *et al* ., ( 1981) Dahmen *et al* ., ( 1985) and Hassan and El-Feel (1988) , Observed that breed is considered one of the most important factors affecting dressing percentages.

**TABLE 2. Least squares means, regression coefficients and statistical significance for factors affecting some carcass traits of lambs.**

| Classification | No. | Carcass wt. (kg) | Fast dressing % | Empty dressing % | Boneless meat % |
|---|---|---|---|---|---|
| | | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. |
| Overall mean | 26 | 20.13 + 0.18 | 49.2 + 0.26 | 55.5 + 0.28 | 77.5 + 0.17 |
| Breed group : | | NS | NS | NS | * |
| Ossimi (O) | 6 | 20.28 + 0.40 a | 49.8 + 0.57 a | 55.4 + 0.60 a | 78.2 + 0.36 a |
| 1/2 O 1/2 S | 8 | 19.75 + 0.34 a | 48.5 + 0.48 a | 55.4 + 0.50 a | 76.5 + 0.30 b |
| 1/2 O 1/2 B | 4 | 20.36 + 0.51 a | 49.5 + 0.72 a | 56.2 + 0.76 a | 78.3 + 0.45 ab |
| 1/2 O 1/4 B 1/4 S | 8 | 20.12 + 0.34 a | 49.1 + 0.48 a | 55.1 + 0.50 a | 77.1 + 0.30 ab |
| Level of feeding : | | NS | NS | NS | NS |
| 100 % | 13 | 20.31 + 0.27 | 49.7 + 0.39 | 55.5 + 0.41 | 77.8 + 0.25 |
| 80 % | 13 | 19.94 + 0.27 | 48.8 + 0.39 | 55.5 + 0.41 | 77.3 + 0.25 |
| Age at slaughter : | | ** | ** | ** | * |
| 10 (mo.) | 14 | 19.34 + 0.32 | 47.3+ 0.45 | 53.7 + 0.46 | 76.8 + 0.29 |
| 12 (mo.) | 12 | 20.91 + 0.33 | 51.1 + 0.47 | 57.3 + 0.49 | 78.3 + 0.30 |
| Regression of carcass traits on slaughter wt. | | ** 0.68 + 0.60 | ** 0.42 + 0.21 | ** 0.02 + 0.01 | * 0.06 + 0.04 |
| Intercept | | -8.8 + 2.5 | 51.4 + 9.2 | -3.63 + 0.3 | 2.42 + 1.9 |

Level of feeding had no significant effect on carcass weight , fast and empty dressing and boneless meat percentages ( Table 2 ). While the effect of age at slaughter on these traits was significant ( P< 0.01 or 0.05 ). The lambs that slaughtered at the age of 12 months had higher values than those slaughtered at the age of 10 months. The present results agree with those reported by Hassan (1984), who found that the effect of age at slaughter ( 9 or 12 months ) on fast and empty dressing percentages and boneless meat percentage was in favour of the older lambs , but the differences were not significant Also, EL-Serafy *et al* ., (1976) Studying rams slaughtered at 18 and 36 months of age , found that the dressing percentage based on live body weight increased significantly ( P< 0.05 ) with advancing age being 50.4 and 58.5 % for the two ages , respectively , Gaili *et al* ., (1972) concluded that the increase in dressing percentage with advancing age is due to higher accruetion of carcass tissues , especially muscle and fat and a slower growth of remainal carcass tissues .

The relationships between slaughter weight and each of feed efficiency , daily gain, carcass weight, fast empty dressing % and boneless meat % were significant ( $P < 0.01$ or 0.05 ) ( Tables 1,2 ). The data indicate that feed conversion values was negatively regressed on slaughter weight , while other traits were positively regressed on slaughter weight (Tables 1, 2 ). Similar results were reported by crouse *et al* ., ( 1981) Moody *et al*., (1980) and Hassan and EL-Feel (1988). They reported that heavier groups of sheep had higher dressing percentages than groups with lower live weights. Negative regression of feed conversion value on slaughter weight can be explained by the fact that lambs reached the heavier weights at the same age are higher in daily gain and feed utilization .

Least squares means and regression coefficients of tail fat or dissected fat ( tail fat , bowel fat and kidney fat ) on slaughter weight are presented in Table 3 . Ossimi lambs had more fat than other genotypes studied , but the differences were not significant. Also , Ossimi lambs had nonsignificantly the highest fat percentages of live body weight or carcass weight , while 1/ 2 0 1/ 2 B had the lightest values (5.9 vs. 4. 8 and 12. 0 vs. 9.7 % , respectively). Crossbreeding between ossimi rams (heavy tail fat) with saidi or barki ewes ( light tail fat) produced lambs , with low fat in their tails (Table 3 ). This trend is quite acceptable. from an economic point of view , fat is a highly expensive tissue to be synthesized of dietary energy , while lean carcasses are more acceptable than those of excessive fat by consumers. These differences in carcass fat between genotypes could be attributed to genotypical variations. Galal *et al* ., (1975) reported differences in body fats among different genotypes studied. Also, Hassan and EL-Feel (1988) observed that breed is considered one of the most important factors affecting body fats. Ossimi lambs had more fat than the other genotypes studied. The weight of tail fat of ossimi lambs was significantly ( $P< 0.05$ ) higher than that of the other genotypes .

Differences in tail fat and total dissected fat due to level of feeding were not significant However, the high level ( 100% of Morrison requirements ) gave a greater weight of the tail fat and total dissected fat than that in the second group ( 80 % of Morrison requirements ). Also, no significant differences was detected between two ages studied ( 10 and 12 months of age ) , although the group slaughtered at 12 months of age had non-significantly more fat than that slaughtered at 10 months of age (Table2). EL-Serafy *et al* ., (1976) working on Rahmani rams found that rams slaughtered at 3 years of age were higher in tail fat than that of the rams slaughtered at 18 - month - old ( 6.71 vs . 5.59 , percent of live weight ). Hassan (1984) Observed that body fat weight was increased as age advanced .

TABLE 3 . Least squares means, regression coefficients and statistical significance for factors affecting tail fat and total dissected fat weights of carcass.

| Classification | No. | Tail fat wt. (kg) | Tail fat % Pt | Tail fat % $ | Total fat wt. (kg) | Total fat % Pt | Tail fat % $ |
|---|---|---|---|---|---|---|---|
| | | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. |
| Overall mean | 26 | 1.91 + 0.13 | 4.4 + 0.42 | 9.0 + 0.55 | 2.28 + 0.14 | 5.3 + 0.42 | 11.2 + 0.56 |
| Breed group : | | NS | NS | NS | NS | NS | NS |
| Ossimi (O) | 6 | 2.13 + 0.29 | 5.0 + 0.90 | 10.1 + 1.18 | 2.53 + 0.30 | 5.9 + 0.90 | 12.0 + 1.22 |
| 1/2 O 1/2 S | 8 | 1.91 + 0.25 | 4.6 + 0.76 | 9.2 + 1.00 | 2.23 + 0.25 | 5.3 + 0.76 | 11.1 + 1.02 |
| 1/2 O 1/2 B | 4 | 1.79 + 0.37 | 4.0 + 1.13 | 8.1 + 1.49 | 2.08 + 0.38 | 4.8 + 1.41 | 9.7 + 1.54 |
| 1/2 O 1/4 B 1/4 S | 8 | 1.79 + 0.25 | 4.1 + 0.76 | 8.3 + 1.00 | 2.26 + 0.25 | 5.1 + 0.76 | 10.4 + 1.02 |
| Level of feeding : | | NS | NS | NS | NS | NS | NS |
| 100 % | 13 | 2.02 + 0.20 | 4.7 + 0.61 | 9.6 + 0.81 | 2.33 + 0.21 | 5.5 + 0.62 | 11.1 + 0.83 |
| 80 % | 13 | 1.79 + 0.20 | 4.1 + 0.61 | 8.4 + 0.81 | 2.22 + 0.21 | 5.0 + 0.62 | 10.4 + 0.83 |
| Age at slaughter : | | NS | NS | NS | NS | NS | NS |
| 10 (mo.) | 14 | 1.75 + 0.23 | 4.0 + 0.71 | 8.6 + 0.94 | 2.11 + 0.24 | 4.7 + 0.72 | 10.1 + 0.97 |
| 12 (mo.) | 12 | 2.06 + 0.24 | 4.8 + 0.74 | 9.4 + 0.97 | 2.44 + 0.25 | 5.8 + 0.74 | 11.4 + 1.00 |
| Regression of fat traits on slaughter wt. | | ** 0.12 + 0.04 | NS 0.25 + 0.13 | NS 0.27 + 0.17 | ** 0.13 + 0.04 | NS 0.24 + 0.13 | NS 0.27 + 0.17 |
| Intercept | | -3.27 + 1.90 | 0.54 + 5.70 | 5.29 + 7.50 | -3.1 + 1.90 | 2.23 + 5.70 | 7.25 + 7.70 |

Pt = percentage of live body weight. $ = percentage of carcass weight.

Regression coefficients of tail fat or total dissected fat weight were positive and significant ( P < 0.01 ) (Table3). Iloyd *et al* ., (1981) also found that a heavy slaughter weight group had more fat over the longissimus dorsi muscle and more kidney and pelvic fats than that of a group of lower live weight at slaughter .

Least squares means and regression coefficients of chemical composition on slaughter weight are presented in Table (4). Differences in chemical composition due to breed were not significant, except that for protein percentage which was significant (P< 0.01). The first cross (1/ 2 O 1/ 2 B) had the highest protein , ether extract and ash percentages and the lowest moisture percentage, while the ossimi lambs had the lowest ether extract (Table 4). The present results agreed with those reported on breed differences in the chemical composition of the carcass. Chopra *et al* ., (1974) indicated that breed had a siginificant effect on carcass protein content. Also, Galal *et al* ., (1971), Rattray *et al* ., ( 1973) and Hassan ( 1984) on different breeds, showed that breed is considered one of the most important factors effecting chemical composition of carcass .

**TABLE 4. Least squares means, regression coefficients and statistical significance for factors affecting chemical composition of the ribs 9, 10 and 11 of the carcass right side.**

| Classification | No. | Moisture % | Protein % | Fat % | Ash % |
|---|---|---|---|---|---|
| | | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. | L.S.M + S.E. or b+S.E. |
| Overall mean | 26 | 58.20 + 1.12 | 18.96 + 0.28 | 21.77 + 0.97 | 0.98 + 0.04 |
| Breed group : | | NS | ** | NS | NS |
| Ossimi (O) | 6 | 61.36 + 2.41 a | 18.45 + 0.60 a | 18.98 + 2.10 a | 0.91 + 0.08 a |
| 1/2 O 1/2 S | 8 | 61.98 + 2.03 a | 16.89 + 0.51 a | 20.09 + 1.77 a | 0.88 + 0.07 a |
| 1/2 O 1/2 B | 4 | 53.31 + 3.04 a | 20.62 + 0.76 b | 25.09 + 2.66 a | 1.08 + 0.10 b |
| 1/2 O 1/4 B 1/4 S | 8 | 56.12 + 2.02 a | 19.86 + 0.50 b | 22.91 + 1.76 a | 1.03 + 0.07 b |
| Level of feeding : | | NS | NS | NS | NS |
| 100 % | 13 | 56.51 + 1.65 | 19.27 + 0.41 | 23.11 + 1.44 | 1.01 + 0.05 |
| 80 % | 13 | 59.88 + 1.65 | 18.65 + 0.41 | 20.43 + 1.44 | 0.94 + 0.05 |
| Age at slaughter : | | NS | ** | NS | * |
| 10 (mo.) | 14 | 59.85 + 1.91 | 18.82 + 0.48 | 20.50 + 1.67 | 0.84 + 0.06 |
| 12 (mo.) | 12 | 56.54 + 1.98 | 20.09 + 0.49 | 22.04 + 1.73 | 1.10 + 0.06 |
| Regression of carcass composition on slaughter wt. | | NS -0.45 + 0.34 | NS 0.16 + 0.08 | NS 0.35 + 0.30 | NS -0.02 + 0.01 |
| Intercept | | 74.66 + 15.29 | 13.87 + 3.81 | 7.88 + 13.37 | 2.15 + 0.05 |

Level of feeding had no signifcant effect on chemical composition of carcass However, the first group (100 % of Morrison requirements) tended to have protein, ether extract and ash percentages than that of the second group ( 80 % of Morrison requirements). Crouse *et al* ., (1978) also , observed greater fat deposition in kidney and pelvic fat depots in lambs fed high energy diets . On the contrary , Burton and Reid (1969) reported that a variety of dietary treatments failed to influence body composition .

Differences in chemical composition due to age at slaughter were not significant for moisture and ehter extract , but was significant ($P < 0.01$ or 0.05) for protein and ash. The group slaughtered at 10 months of age contained a higher average percentage of moisture but a lower percentages of protein , ether extract and ash than that of the group slaughtered at 12 month - old Rattary *et al* . ( 1974) reported that moisture , protein and ash contents decreased with age , but fat content increased Nevertheless, Chopra *et al* . ( 1974) indicated that age had no significant effect on protein content .

Regression coefficients of chemical composition of carcass on slaughter weight were not significant. However, there was some of a positive relationship with protein and ether extract percentages , while, it was negative with percentages of moisture and ash (Table 4). Hassan (1984) noticed that moisture and ash percentages decreased with the increase of body weight at slaughter, while fat percentage increased. Iloyd *et al* ., . (1981) , also stated that heavy body weight at slaughter had more fat over the Longissimus dorsi, round the kidney and pelvic. Crouse *et al* ., (1981) observed that lambs slaughtered at heavy weight were higher in fat deposition than the light weight .

Out of this research it could be concluded that efficiency of food utilization of Egyptian lambs increased , as feed offered was restricted from 100 to 80 % of Morrison requirements Also, efficiency of feed utilization of animals slaughtered at 10 months of age was higher than that of animals slaughtered at 12 months of age and the final body weights were almost similar in the two groups at slaugther In addition, level of feeding had no significant effect on carcass traits under study. Crossbreeding between ossimi rams (heavy tail fat) with saidi or Barki ewes (light tail fat) produced lambs , with light fat in their tails. This trend is quite acceptable .

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# تأثير السلالة ومستوى التغذية والعمر والوزن عند الذبح على أداء وصفات الذبيحة فى الحملان

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أجرى هذا البحث بمزرعة الإنتاج الحيوانى بكلية الزراعة - جامعة المنيا على ٥٢ رأسا من الحملان الذكور والتى تتبع سلالة الأغنام الأوسيمى وثلاث من الهجن الناتجة من خلط الذكور الأوسيمى مع النعاج الصعيدى والبرقى والنعاج لـ ( ١/٢ برقى ١/٢ صعيدى) حيث كانت الهجن الناتجة هى ١/٢ أوسيمى ١/٢ صعيدى ، ١/٢ أوسيمى ١/٢ برقى ، ١/٢ أوسيمى ١/٤ برقى ١/٤ صعيدى وقد غذيت الحملان على مستويين من التغذية ( المستوى الأول ١٠٠ ٪ والمستوى الثانى ٨٠ ٪ من مقررات مورسن للتسمين ) وذلك لمدة ١٢ أسبوعا قبل الذبح - حيث ذبح نصف هذة الحملان عند عمر ١٠ شهور بينما ذبح النصف الأخر عند عمر ١٢ شهرا - وذلك بهدف دراسة تأثير عملية الخلط ومستوى التغذية والعمر والوزن عند الذبح على أداء وخصائص الذبيحة المختلفة وقد أظهرت نتائج البحث مايلى : -

١ - كان تأثير السلالة والعمر عند الذبح على الكفاءة الغذائية ومعدل الزيادة اليومية جوهريا جدا فى حين كان تأثير مستوى التغذية جوهريا جدا على الكفاءة الغذائية و غير جوهرى على معدل الزيادة اليومية .

٢ - كانت حملان الجيل الأول الخليطة أعلى فى معدل الاستفادة من الغذاء وكانت أسرع فى معدل الزيادة اليومية عن الحملان الأوسيمى والخليطة ( ١/٢ أوسيمى ٢/٤ برقى ١/٤ صعيدى ) .

٣ - وجد أن الكفاءة الغذائية ومعدل الزيادة اليومية تنحدر جوهريا على الوزن عند الذبح حيث كانتا هذة العلاقة موجبة مع الكفاءة الغذائية وكذلك كانت موجبة مع

معدل الزيادةاليومية. ٤ - كان تأثير كل من السلالة ومستوى التغذية على وزن الذبيحة ونسبة التصافى للوزن الفارغ ونسبة التصافى غير جوهرى فيما عدا تأثير السلالة على نسبة التصافى فقد كان جوهريا وقد كان تأثير العمرعند الذبح جوهرى أو جوهرى جدا على الصفات المذكورة .

٥ - تفوقت الحملان الخليطة ١/٢ أوسيمى ١/٢ برقى فى نسبة التصافى للوزن الفارغ ونسبة التصافى على الحملان الخليطة الاوسيمى والحملان الخليطة الأخرى .

٦ - وجدت علاقة انحدار جوهرية بين صفات الذبيحة تحت الدراسة على الوزن عند الذبح .

٧ - كان تأثير كل من السلالة ومستوى التغذية والعمر عند الذبح على دهن اللية أو الدهن الكلى تحت الدراسة ( دهن اللية + دهن الأمعاء + دهن الكليتين ) غير جوهرى.وقد تفوقت ذبائح الحملان الأوسيمى فى كمية الدهن تحت الدراسة على ذبائح الحملان الأخرى .

٨ - كانت توجد علاقة انحدار موجبة وجوهريا جدا بين صفات الذبيحة والوزن عند الذبح .

٩ - كان تأثير كل من السلالة ومستوى التغذية والعمر عند الذبح على التحليل الكيماوى للذبيحة غير جوهرى فيما عدا تأثير كل من السلالة ومستوى التغذية فقد أظهرت تأثيرا جوهريا جدا على نسبة البروتين .

١٠ - وجدت علاقة انحدار غير جوهرية بين التحليل الكيماوى والوزن عند الذبح وقد كانت هذه العلاقة موجبة على نسبة البروتين والدهن وسالبة مع نسبة الرطوبة والرماد فى الذبيحة.

ومن النتائج السابقة يوصى البحث بتغذية الحملان المصرية على المستوى الأقل ٨٠ ٪ حيث كان أفضل من الناحية الاقتصادية ولم تظهر أى اختلافات فى صفات الذبيحة المختلفة تحت الدراسة .