

# بسم الله الرحمن الرحيم

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### STUDY OF CARCASS QUALITY IN LOCAL SHEEP

B18804

By

### Abdel- Hameed Ahmed Awad Gomaa

B.Sc. Agricultural Science (Animal production)
Faculty of Agriculture at Moshtohor,
Zagazig University, Benha Branch, 1983

## **Thesis**

Submitted in Partial Fulfillment of the Requirements for Degree of Master of Science

IN.

ANIMAL PRODUCTION

TO

Department of Animal Production Faculty of Agriculture at Moshtohor Zagazig University (Benha Branch)

Egypt

2000

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# بألله التجمز التحيث الرأ باسم ربك الذي خلق علق الإنسان من علق اقرأ وريك الأكرم الذى عام بالقام علم الإنسان ما لم يعلم

صرق الله العظيم

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### **Thesis**

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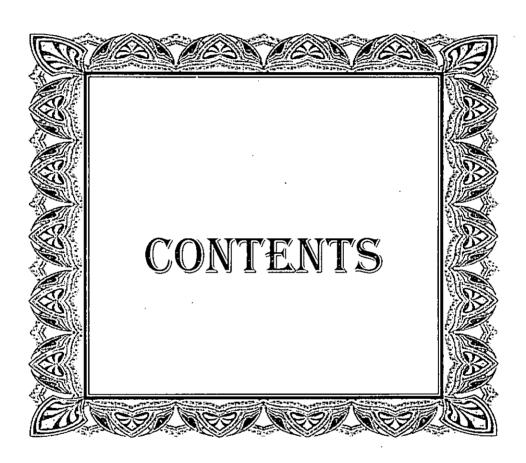
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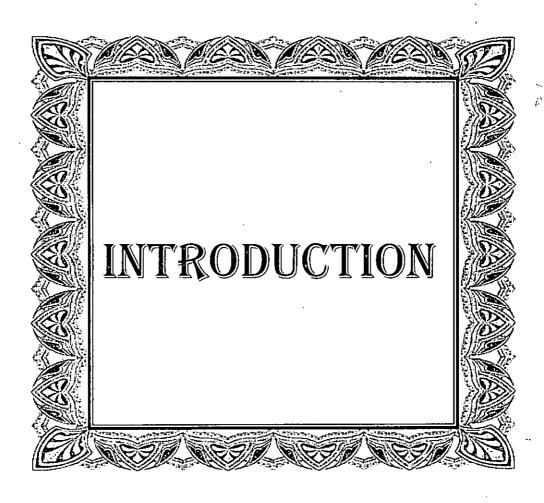
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### 1. INTRODUCTION

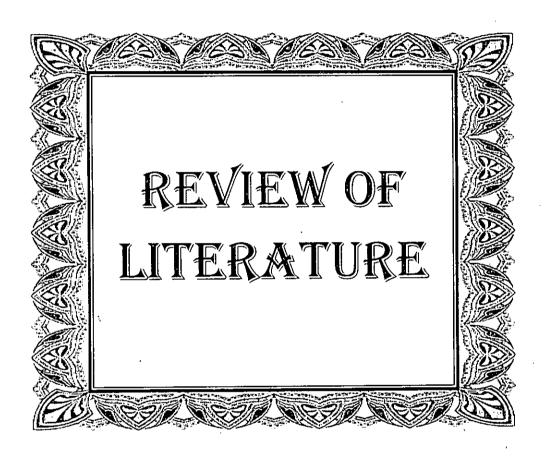
In Egypt, economic circumstance have, sometimes favored sheep having the ability to produce desired type of lamb or mutton with desired qualities. Performance, live apraisal and carcass appraisal are all important determinats to the economic value of a lamb.

Crossbreeding is considered an important factor affecting lambs carcass traits. Breed-groups comparison are often made at a constant weight because variations in level of fat, lean and bone are readily interpreted in commercial terms. Breed comparisons at similar weights minimize environmental differences (Botkin et al., 1988).

Diet is certainly the most controversial factor influence on lamb carcass composition. In addition to level of feeding the composition of the diet can influence fat content of carcasses of similar weight.

Age and weight of lambs are interrelated. As lambs become older, they grow and increase in weight, but increases in age are negatively associated with palatability (Botkin et al., 1988). Dressing percentage increases as the age and live body weight of the lamb increase. The fat, lean and bone tissue in lamb carcass are variable according to carcass weight and age.

The aim of the present study is to evaluate the effect of breed-group factor (Ossimi and Ossimi×Rahmani) and slaughter age factor (6, 9 and 12 months of age) on carcass traits, carcass dimensions, meat quality and to predict weight of carcass cuts from body dimensions just before slaughtering.



### 2. REVIEW OF LITERATURE

# 2.1. The effect of breed-group and age of lambs on the live body weight:

Growth is one of the most important factors affecting sheep mutton production. Genetic and non-genetic factors were found to influence on growth of different sheep breeds. Live body weight and age of lambs prior to slaughter and breed-group factors are considered in the present study as a measure of the amount and quality of meat produced.

### 2. 1. 1. Effect of breed-group of lambs:-

Several studies were reported by Egyptian investigators on different local and imported sheep breeds and their crosses about the effect of breedgroup on lamb's body weight. Asker et al., (1954 b) found that the body weights at 8 months old for crosses of Rahmani and Ossimi lambs were superior to the pure breeds. Labban and Radwan (1963) working on the cross of Merino with each of Ossimi and Barki sheep, reported that vearling weights of crossbred were greater than the yearling weights of Ossimi and Barki sheep. Khalil (1966) found that at ten months of age, the body weights of Ossimi and Rahmani lambs during the first lambing season when lambs were creep fed were 37.18 and 41.76 kg, respectively and weights were 26.51 and 27.85 kg for controls. On the other hand, during the second lambing season when lambs also were creep fed, the body weights were 32.52, 43.68 and 52.96 kg for Ossimi, Rahmani and Merino × Rahmani, respectively, and weights were 24.97, 30.15 and 36.16 kg for controls in the same order. Ghoneim et al., (1968) found that the average body weights of Ossimi, Merino, 1/2 Merino, 1/4 Merino ram lambs at 8 months old were 31.1, 35.6, 47.8 and 47.4 kg, respectively. They added that the average of weights at 12 months of age were 39.7, 39.7, 52.2 and 50.5 kg, respectively and the differences in weights between Merino and Ossimi at these two ages were highly significant.

Aboul-Naga et al., (1972) and El-Kouni et al., (1974) and El-Kimary (1975) in their studies on different native breeds and some imported breeds of sheep, stated that the breed of sheep had significant effect on birth and subsequent weights. Darwish et al., (1973) observed that the average body weights of castrated and non-castrated Rahmani lambs at 7 months of age were 24.23 and 27.93 kg, respectively. Safa Al-Amin (1976) found that the differences in body weights between lambs of different breeds at 8, 12 and 18 months of age were significant (P<0.01) and the interaction between breed and age was significant (P<0.05).

Hassona (1980), with Barki, Ossimi, Rahmani lambs and their crosses with Ile-de-France sheep, found that the breed type did not show any significant effect on the average final weight after a fattening period started when lambs were 17 - 24 weeks and ended when they were 40 weeks of age. Initial weights in the start of fattening were 20.2, 20.1, 20.0, 20.1, 20.2 and 20.5 kg, respectively at ages 24, 22, 21, 24, 22 and 17 weeks old. The final weights, when age of animals was 40 weeks in the end of fattening, were 30.6, 34.4, 36.0, 32.7, 35.5 and 39.7 kg, respectively. El-Said (1983) with Barki, 3/4 Ossimi × 1/4 Barki and 7/8 Ossimi×1/8 Barki lambs, found that the crossbred lambs showed higher average final (slaughter) weight than Barki lambs when fattened during the period from 4 to 8 months of age. The same author (1983) with 1/2 Rahmani×1/2 Ossimi crossbred lambs showed higher average final (slaughter) weight than Ossimi lambs when fattening was done for either 16 or 32 weeks.

Hassan (1984), Marzouk (1986) and Hassan and El-Feel (1988) on Ossimi, Barki, Saidi and their crosses, recorded that, Ossimi lambs had the heaviest and Saidi had the lightest weaning weights among the pure breeds, while, that of the  $F_1$  crosses surpassed those of their parents, and 1/2Saidi $\times 1/2$  Ossimi was heavier than 1/2 Barki  $\times$  1/2 Ossimi and the differences in weights between breed-groups were significant (P<0.01) Another study reported by Hassan (1993) using the same data of breedgroup, found that crossbred lambs (1/2 Chois × 1/2 Ossimi and 1/2 Chios × were heavier than purebred lambs (Osimi and Saidi, respectively). The  $F_1$  crossbred (1/2 Chois  $\times 1/2$  Ossimi) had the heaviest body weight, while Saidi lambs had the highest values at all studied ages. Mousa (1991) with Ossimi, Awassi, Chios and their crosses, reported that the effect of breed on body weight was significant (P<0.05) at 4 months of age and highly significant (P<0.01) at 6, 8, 10 and 12 months of age. Abdel-Reheem (1994) with Ossimi, Chios and their crosses 1/2 Chios  $\times 1/2$ Ossimi and 3/4 Chios  $\times$  1/4 Ossimi lambs at birth, weaning (2 months), 4, 6, 8, 10 and 12 months of age, found that the effect of breed-group on body weights was significant (P<0.01) at birth, 2 and 4 months of age and nonsignificant at 6, 8, 10 and 12 months of age.

El-Sayed et al., (1995) for Ossimi and (1/2 Rahmani  $\times$  1/2 Ossimi) crossbreds at 15 days, 4, 8 and 12 months of age, found that crossbreds were insignificantly different than the purebreds, except at 12 months of age (P<0.01). Marai (1998) working on Ossimi (O), Rahmani (R), 1/4 Finnish Landrace (F)  $\times$  3/4 Ossimi (O) and 1/4 F  $\times$  1/4 O  $\times$  1/2 R, revealed that the effect of breed type was significant at birth, 8, 16 and 24 weeks of age, in two lambings per one year or three lambings per two years system.