

CARCASE YIELD AS INFLUENCED BY AGE AND SEX IN SHEEP AND GOATS

Nazir Ahmad, Bakht B. Khan, S. Ahmad, M. Younas and J. I. Sultan

ABSTRACT

Two hundred animals each of sheep and goat species were used from Faisalabad city and Kunjah town (District Gujrat) slaughter houses to study the effect of age and sex on carcass yield. Irrespective of the species and sex, a higher dressing percentage was observed in animals aged upto six months. Goats showed better carcass yield as compared to sheep when slaughtered at the same age. Similarly, male animals produced heavier carcasses than those of females. The amount of blood as percentage of body weight was found to be more in males than in females of both species. Age and sex significantly influenced the head and trotters weight both in sheep and goats. Age, sex and species had a highly significant effect on kidney and pluck weight. The results indicated that liveweight and carcass weight and weights of blood, head, trotters, and kidney were significantly correlated.

INTRODUCTION

The per capita consumption of meat is 9.68 kg in Pakistan (Anonymous, 1983-84), which is very low as compared to that of several developed countries. Of the recommended level of about 63 gm of dietary protein/head/day, only 12 gm come from foods of animal origin (Hussain, 1981). This value of dietary protein, by any standard, is much below the recommended level (Aslam *et al.*, 1982). Suitable steps need to be taken to ameliorate the situation concerning very low per capita consumption of meat in the country.

Among the livestock, sheep and goats because of their growing number, higher biological value of the food items produced by them and small generation interval, can play a significant role in effecting improvement in meat

Carcass Yield in Sheep and Goats

supply in Pakistan. Authentic information on several aspects of these species is yet not available. For assessing the number of sheep and goats required annually for slaughter in this country, dressing percentage as influenced by various factors, would be a prerequisite.

The present study was, therefore conducted to collect data that could indicate the influence of age and sex on carcass yield of sheep and goats.

MATERIALS AND METHODS

Two hundred animals each of sheep and goat species were used from the slaughter houses of Faisalabad city and Kunjah town (District Gujrat) to study the effect of age and sex on carcass yield. To sort out the effect of sex, the data were divided into two (male and female) groups which were further divided into five sub-groups (A1 to A5) according to their ages, ranging from upto 6 months, 7-12 months, 13-18 months, 19 to 24 months and above.

The data were analysed to test the significance of differences between means of different treatments by factorial design, using analysis of co-variance method. The correlation coefficients between liveweight and other factors were worked out according to Snedecor (1967).

RESULTS AND DISCUSSION

The average liveweight, carcass weight and dressing percentage at different ages in sheep and goats are shown in Table 1. The maximum dressing percentage in both sexes of sheep and goats was observed in animals upto 6 months old (A1 group). The male animals showed comparatively higher (43.96 to 50.50) dressing percentage than females (41.83 to 48.92) in both the species because of the effect of male sex hormones leading thus to better development. Similar findings were reported by Rodin (1968). The correlation coefficient ($r=0.95$) between liveweight and carcass weight was found to be highly significant. The difference in carcass weight due to age, sex and species was significant (<0.01). The species differences were highly significant and goats were found to be better than sheep in carcass yield.

Blood: The amount of blood expressed as percentage of body weight in male

Table 1. Average liveweight, carcass weight and dressing percentage in different age groups of sheep and goats

Age group	Sex	Liveweight (kg)		Carcass weight (kg)		Dressing percentage	
		Sheep	Goat	Sheep	Goat	Sheep	Goat
A ₁ (up to six months)	M	18.62	15.98	8.40	8.07	45.11	50.50
	F	18.16	15.48	7.92	7.57	43.61	48.90
A ₂ (7-12 months)	M	23.78	21.72	10.94	10.40	46.00	47.88
	F	24.42	21.48	10.44	10.37	42.75	48.27
A ₃ (13-18 months)	M	27.61	28.26	12.23	13.19	44.29	46.67
	F	27.76	28.76	11.61	13.83	41.83	47.98
A ₄ (19-24 months)	M	31.30	27.62	13.76	12.81	43.96	46.91
	F	30.77	27.10	13.57	12.55	44.10	46.34
A ₅ (25 months & above)	M	31.23	31.06	13.78	15.24	44.12	49.08
	F	28.50	30.07	12.22	14.77	42.87	49.11

M = Male; F = Female.

goats ranged from 3.85 to 4.37, whereas in sheep these values varied from 3.52 to 4.07 per cent, respectively (Table 2). These observations are not in line with those of Swenson (1970) who reported that blood values ranged from 5.80 to 9.00 per cent of the body weight. The coefficient of correlation ($r=0.82$) between liveweight and blood weight was highly significant. These differences may be partially attributed to the variation in: breed, age and liveweight of animals used in the two studies.

Head and Trotters : The average weight of head in male and female sheep and goats was 1.77, 1.65, 1.83 and 1.68 kg, respectively. The average weight of head in terms of percentage of liveweight of goats was 6.25 to 7.38, whereas in sheep it ranged from 6.01 to 7.20. The trotters weighed on an average 0.63, 0.61, 0.61 and 0.64 kg in male and female goats and sheep, respectively. The corresponding values as per cent of liveweight ranged from 2.79 to 3.25 in goats and 2.36 to 3.06 per cent in sheep. The weight of head and trotters was higher in males than that of females. With advancing age, the body weight and size of animals normally increased. This increase appears to be related with the increase in both weight and size of the head and trotters and probably, due to this reason the animals in group A5 (25 months and above) weighed 1.770 kg and 0.718 kg more, respectively. A non-significant difference was found due to species in the weight of head and trotters.

Kidneys : The average weight of kidneys as per cent of body weight ranged from 0.25 to 0.44 and 0.29 to 0.32 in goats and sheep, respectively (Table 2). Goats had heavier kidneys as compared to those of sheep. Similarly, males had heavier kidneys than those of females.

Male and female animals in group A1 (upto 6 months) showed a higher percentage of kidney weight in both the species. The correlation coefficient between body weight and kidney weight is $r=0.71$ which indicates that body weight and kidney weight are highly correlated.

Pluck: The average pluck weight was 0.99 and 0.95 kg and 1.00 and 1.04 kg in males and females of goats and sheep, respectively. Males showed heavier pluck than those of females in both the species. Better pluck weight was observed in sheep

Table 2- Average weight (kg) of blood, head, trotters, kidney and pluck in different age groups of sheep

Age group	Sex	Blood		Head		Trotters		Kidneys		Pluck	
		Wt.	%age	Wt.	%age	Wt.	%age	Wt.	%age	Wt.	%age
A ₁ (upto six months)	M	0.70	3.75	1.32	7.08	0.57	3.06	0.06	0.32	0.75	4.02
	F	0.64	3.52	1.17	6.44	0.55	3.02	0.06	0.33	0.71	3.91
A ₂ (7-12 months)	M	0.90	3.78	1.65	6.93	0.59	2.48	0.07	0.29	0.89	3.74
	F	0.85	3.89	1.55	6.34	0.58	2.37	0.07	0.29	0.80	3.27
A ₃ (13-16 months)	M	1.16	4.20	1.99	7.20	0.74	2.63	0.09	0.32	1.23	4.46
	F	1.13	4.07	1.82	6.55	0.66	0.37	0.08	0.29	1.13	4.07
A ₄ (17-24 months)	M	1.23	3.92	2.06	6.58	0.74	2.36	0.10	0.32	1.28	4.08
	F	1.21	3.93	1.85	6.01	0.73	2.37	0.09	0.29	1.28	4.15
A ₅ (25 months & above)	M	1.18	3.77	2.12	6.78	0.76	2.43	0.10	0.32	1.32	4.22
	F	1.13	3.96	2.00	7.01	0.89	2.42	0.09	0.32	1.29	4.52

M = Male; F = Female.

Table 3. Average weight (kg) of blood, head, trotters, kidneys and pluck in different age groups of goats

Age group	Sex	Blood		Head		Trotters		Kidneys		Pluck	
		Wt.	%age	Wt.	%age	Wt.	%age	Wt.	%age	Wt.	%age
A ₁ (upto six months)	M	0.67	4.19	1.18	7.38	0.52	3.25	0.07	0.44	0.64	4.00
	F	0.67	4.33	1.09	7.04	0.45	2.90	0.06	0.39	0.69	3.87
A ₂ (7-12 months)	M	0.95	4.37	1.50	6.90	0.61	2.80	0.08	0.37	0.86	3.95
	F	0.92	4.28	1.45	6.75	0.57	2.65	0.08	0.37	0.79	3.67
A ₃ (13-18 months)	M	1.09	3.85	1.88	6.65	0.66	2.33	0.10	0.35	1.07	3.78
	F	1.11	3.85	1.80	6.25	0.66	2.39	0.10	0.36	1.06	3.68
A ₄ (19-24 months)	M	1.17	4.25	1.91	6.94	0.66	2.39	0.11	0.40	1.13	4.10
	F	1.14	4.20	1.83	6.75	0.65	2.39	0.10	0.37	1.06	3.91
A ₅ (25 months & above)	M	1.29	4.15	2.16	6.95	0.72	2.31	0.12	0.39	1.28	4.12
	F	1.26	4.19	2.12	7.05	0.72	2.39	0.11	0.37	1.22	4.05

M = Male; F = Female.

Carcass Yield in Sheep and Goats

than in goats in both sexes. The correlation coefficient between body weight and pluck weight was $r=0.74$, indicating that the two were highly correlated.

REFERENCES

- Anonymous. 1983-84. Pak. Economic Survey, GOP, Economic Adviser's Wing, Finance Div., Islamabad.
- Aslam, M. M., A. H. Gilani and A. R. Qazi. 1982. Some Dimensions of Rural Food Poverty, Nutritional Status and its Improvement. A Report Published by Univ. of Agri., Faisalabad and German Agro-Action, Bonn.
- Rodin, V. P. 1968. Meat quality of Suffolk x Taigai crossbreds. *Ovtsevodstvo*, 14 : 33-36 (*Anim. Breed. Abst.*, 36 : 2639, 1968).
- Snedecor, G. W. and W. G. Cochran. 1982. *Statistical Methods* (5th Ed). Iowa State Univ. Press, Ames, Iowa, USA.
- Swenson, M. J. 1970. *Duke's Physiology of Domestic Animals*. Comstock Publishers, USA.