

Comparison of Some Fleece Yields and Characteristics for Ile de France x Akkaraman (B₁) and (Ile de France x Akkaraman B₁) x Karakas (F₁) Crossbreed Sheep in Turkey

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Abstract: This study was carried out to determine and compares the some fleece characteristics and greasy fleece weights in Ile de France x Akkaraman (B₁) and (Ile de France x Akkaraman B₁) x Karakas (F₁) crossbreds. Data were collected from 10 Ile de France x Akkaraman (B₁) (IFA) and 10 (Ile de France x Akkaraman B₁) x Karakas (F₁) (IFAK) sheep in Animal Science Breeding Farm, Yuzuncu Yil University, Turkey. Greasy fleece weights (kg) were obtained at shearing in late June. Wool characteristics in the sheep were investigated for greasy fleece weight (kg), clean fiber percentage (%), elasticity (%), breaking strength (g), fiber length (mm) and fibre diameter (µm). Data for each wool characteristics were analyzed effecting on sex and breeds of sheep. Overall means of fleece characteristics were 52.70±1.53%, 23.03±1.37%, 6.37±0.41g, 37.93±1.16 mm and 27.68±0.77 µm for clean fiber percentage, elasticity, breaking straight, fiber length and fiber diameter, respectively. There weren't important differences between Ile de France x Akkaraman (B₁) and (Ile de France x Akkaraman B₁) x Karakas (F₁) crossbreds for means of the greasy fleece and means of the fleece characteristics. As results of this study, it was found that a small improvement was observed in (Ile de France x Akkaraman B₁) x Karakas (F₁) crosses.

Key words: Karakas, Ile de France, crossbreed, fleece characteristics

Introduction

In the number of total sheep population, local sheep breeds covered 95% percentages in Turkey (Arik *et al.*, 2003). Akkaraman local breed is widely raised in Anatolian region. However, local sheep breeds in Turkey have generally low yields (Elicin *et al.*, 2001 and Arik *et al.*, 2003). Therefore, studying of crossing with high producing sheep breeds have been widely used for improving their yield traits (Colakoglu and Ozbeyaz, 1999 and Elicin *et al.*, 2001). These studies were aimed to improve meat yields and quality with some high productivity meat levels. Ile de France, one of the important breed using for this aims. Although, it is known that sheep breed is a high quality meat yields, Ile de France have higher quality of fleece characteristics than local sheep in Turkey except for crossing Merino sheep (Arik *et al.*, 2003).

Tekin *et al.* (1999) investigated fleece characteristics for Turkish Merino sheep, German Black headed Mutton sheep, Hampshire Down, Lincoln Long wool, Corriedale and their F₁ and B₁ crossbreed sheep. In this study, the effects of all the examined factors on greasy fleece weight and staple length were significant, except sex on staple length. In addition to population averages of greasy fleece weight, staple length, fibre twin and fibre diameter were 3.29 kg, 9.81 cm, 8.38 units and 24.55 µ, for merino and crossbreds, respectively.

In addition to crossbreed between local sheep and culture breeds, studies have examined crossbreed between local breeds and local breed, in these studies, there were aimed to improving yields. Atasoy *et al.* (2003) reported that Karayaka and Bafra (Chios x Karayaka B₁) sheep produced 2.2±0.24 and 2.2±0.05 kg for greasy fleece weight, respectively. In this study, researchers reported that some fleece characteristics were to be 39.1±0.90 and 35.9±0.58 µm for fibre diameters; 24.8±0.44 and 22.6±0.08 cm; for fibre length; 14.2±0.48 and 17.5±0.50 g for breaking straight in Karayaka and crossbreds, respectively.

Results of the studies carried out to aim improving meat performances for local sheep indicated that using Ile de France for crossing local sheep breeds have been improving of the quality of fleece characteristics besides meat yields. For instance, Arik *et al.* (2003), the studying for conducted to investigate the some physical fleece characteristics of Anatolian Merino, Akkaraman, Ile de France x Anatolian Merino (F₁) and Ile de France x Akkaraman (F₁) ewes, reported that fleece characteristics have not influenced at unfavorable way by crossing Ile de France x Anatolian Merino at F₁ level and there were a bit improvement for fleece characteristics of the crossing Akkaraman and Ile de France. In this study, means of the fibre diameter (µ) reported as 23.46±0.314, 26.04±0.408, 23.97±0.257 and 26.99±0.433 µ for Anatolian Merino, Akkaraman, Ile de France x Anatolian Merino (F₁) and Ile de France x Akkaraman (F₁), respectively; fibre length (cm), elasticity (%), fibre strength (g) and clean fibre percentages (%) for same orders reported as 4.78±0.135, 7.06±0.222, 4.79±0.179 and 7.47±0.214 cm for same breeds; 27.35±1.220, 28.67±0.664,

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23.69±0.704 and 29.16±0.615; 5.10±0.301, 9.25±0.561, 4.75±0.271 and 10.42±0.489; 51.91±1.420, 60.52±1.470, 51.13±1.480 and 58.70±1.200 for same breeds, respectively.

Ile de France x Akkaraman (B_i) crossbreed have been using for improving meat yields in Karakas sheep breeds being variety of Akkaraman raised in East Anatolia (kaynaklar). However, fleece yields and characteristics were not investigated in this crossbreed sheep. This study was carried out to determine and compares the some fleece characteristics and greasy fleece weights in Ile de France x Akkaraman (B_i) and (Ile de France x Akkaraman B_i) x Karakas (F₁) crossbreeds.

Materials and Methods

Data were collected from 10 Ile de France x Akkaraman (B_i) (IFA) and 10 (Ile de France x Akkaraman B_i) x Karakas (F₁) (IFAK) sheep in Animal Science Breeding Farm, Yuzuncu Yil University, Turkey.

Greasy fleece weights (kg) were obtained at shearing in late June. The research material was fleece samples taken from the mid-rib. Each wool characteristics were determined with standard method in Lalahan Livestock Central Research Institute, Ankara, Turkey. Wool characteristics in the sheep were investigated for greasy fleece weight (kg), clean fiber percentage (%), elasticity (%), breaking strength (g), fiber length (mm) and fibre diameter (µm).

Data for each wool characteristics were analyzed effecting on sex of sheep. Each sex groups (5 female and 5 male for IFA; 6 female and 4 male for IFAK) are selecting from 2-3 years old.

Least squares procedures were used to analyze wool characteristics. A general statistical model included the effect of sex and breed groups, on wool traits, where applicable and residual error (SAS, 1998).

Results and Discussion

In this study, overall means of fleece characteristic described as 2.90±0.19 kg for greasy fleece weights. Means of greasy fleece weights were 2.86±0.31 and 2.93±0.23 kg for IFA and IFAK, respectively. Other descriptive statistics for fleece characteristics were summarized in Table 1.

Table 1: Some descriptive fleece traits for IFA and IFAK sheep (n=20)

Traits	Ile de France x Akkaraman (B _i) (IFA)		(Ile de France x Akkaraman B _i) x Karakas (F ₁) (IFAK)		Overall	
	$\bar{x} \pm S\bar{x}$	Cv	$\bar{x} \pm S\bar{x}$	Cv	$\bar{x} \pm S\bar{x}$	Cv
Greasy Fleece Weight (kg)	2.86±0.31	34.16	2.93±0.23	24.92	2.90±0.19	29.03
Clean Fiber Percentage (%)	53.16±2.44	14.53	52.24±1.97	11.93	52.70±1.53	12.99
Elasticity (%)	24.52±1.56	20.18	21.54±2.23	32.82	23.03±1.37	26.63
Breaking Straight (g)	5.66±0.57	31.93	7.08±0.54	24.21	6.37±0.41	29.24
Fiber Length (Hauter, mm)	38.03±1.97	16.40	37.83±1.33	11.16	37.93±1.16	13.67
Fiber Diameter (µm)	26.72±1.33	15.76	28.64±0.74	8.23	27.68±0.77	12.52

Table 2: Anaylisis of variance results for wool characteristics

Traits	Breed			Sex			Error	
	DF	MS	F	DF	MS	F	DF	MS
Greasy Fleece Weight (kg)	1	0.022	0.03	1	0.632	0.84	17	0.752
Clean Fiber Percentage	1	4.232	0.08	1	28.706	0.57	17	50.475
Elasticity (%)	1	44.430	1.13	1	3.200	0.08	17	39.241
Breaking Straight (g)	1	10.080	3.08	1	0.290	0.09	17	3.275
Fiber Length (Hauter, mm)	1	0.200	0.01	1	0.540	0.02	17	30.020
Fiber Diameter (µm)	1	18.470	1.50	1	0.001	0.00	17	12.350

* F values is significantly at 0.05 level

Overall means of fleece characteristics were 52.70±1.53%, 23.03±1.37%, 6.37±0.41 g, 37.93±1.16 mm and 27.68±0.77 µm clean fiber percentage, elasticity, breaking straight, fiber length and fiber diameter, respectively. Arik et al. (2003) reported that crossing with Ile de France generally had no negative effects on the fleece characteristics of the Anatolian Merino, whereas as a small improvement was observed in crossing Ile de France x Akkaraman. In present study, fleece characteristics were not affected with crossing Karakas breed. Results of this

study for important fleece characteristics were generally closely reported previous studies on fleece characteristics of the Akkaraman breeds (Dellal, 2001; Arik *et al.*, 2003 and Imik *et al.*, 2003). Dellal (2001) reported that greasy fleece weights of Akkaraman were ranged from 2.78 to 2.88 kg. In this researcher reported for means of the fiber diameters and fiber lengths were higher values (28.08-30.11 μm ; 4.98-5.12 cm) than results of the present study. For IFA and IFAK, fleece characteristics were different with results of Arik *et al.* (2003) reported for Ile de France x Akkaraman (F_1). Accordingly Table 2, as results of the analysis of variances weren't important differences between IFA and IFAK for means of the greasy fleece and fleece characteristics.

Wool characteristics in other local ewes reported as 2.2 ± 0.24 kg, 39.1 ± 0.90 μm , 24.8 ± 0.44 cm and 14.2 ± 0.48 g for greasy fleece weights, fibre diameter, fiber length and breaking straight in Karayaka (Atasoy *et al.*, 2003), respectively; and reported 1.95 ± 0.27 kg and 28.26 ± 0.110 μm for greasy fleece weights and fibre diameter in Chios and 2.61 ± 0.022 kg and 32.30 ± 0.158 μm for same traits in Imroz, respectively (Corekci and Evrim, 2000). Altin *et al.* (1999) reported as 0.99-1.18 kg for greasy fleece weight in Cine Capari (Local Synthetic Breed). In present study, it was found that fleece traits for IFA and IFAK were closely some fleece characteristics with other local breeds. In the other hand, fibre diameter was substantially lower than Karayaka and Imroz, but, same value was closely with Chios sheep breed.

Conclusion

As concluded in this study, fleece characteristics for crossbreeding with Ile de France were investigated. Difference between IFA and IFAK were not significantly. In addition, there are mainly importances of the sheep meat yields for breeders in East Anatolian Region, Turkey. Income from sheep breeding generally depends on lamb production. In this purpose, researchers have been mainly studying on meat performance and improving meat quality for local sheep. However, carpet and Kilim trade is most important for people and breeders in Turkey. Furthermore, traditionally producing carpet, oriental Kilim and other textile industry are also most importance in East Anatolian region.

As a result, both IFA and IFAK' wool characteristics and yields for making carpet and Kilim were useful quality. However, in the studying to aim for improving meat yields, there weren't observed to change of wool traits. Moreover, as regarding in regional conditions, meat, milk and wool yields should be improving all these traits together.

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