

BREED DIFFERENCES IN LAMB INTRAMUSCULAR FAT DISTRIBUTION**

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Keywords: lamb intramuscular fat breed distribution

INTRODUCTION

Intramuscular fatty tissue is an important factor in meat quality. The consumer would prefer no fat if that would be possible but, within the optimum range, fat has a positive effect on the essential meat quality characteristics. Several scientific studies discuss relationships between the quantity and distribution of intramuscular fat and breed type (Albrecht et al., 1996). The aim of this paper was to determine differences in intramuscular fat content of the main leg muscles from Corriedale and Merino lamb breeds

MATERIALS AND METHODS

The experimental animals were Corriedale (n=52) and Merino (n=25) lambs with a carcass weight under 12 kg. Semimembranosus (SM), Semitendinosus (ST), Biceps femoris (BF), Rectus femoris (RF) and Gluteus (G) muscles were dissected, weighted, minced and aliquot samples dried and extracted with boiling hexane to obtain the total intramuscular fat (García et al. 1995). The data were analyzed using a General Lineal Model Procedure (SAS Institute, 1987). Discriminant factor analysis (DFA) was performed to classify the breeds according to the intramuscular fat deposition data.

RESULTS AND DISCUSSION

The average values for muscle weights and distribution in total leg muscle are shown in Table 1. The average values for IMF% in the five muscles are presented in Table 2. The total IMF (g) and the IMF distribution are given in Table 3.

Discriminant Factor Analysis clearly shows the differences in intramuscular fat distribution between Corriedale and Merino lambs. The classification matrix from the DFA using the IMF%, the IMFg or the distribution of intramuscular fat among the five muscles is presented in Table 4. The percentages of correct goes from 60 to 90%.

CONCLUSIONS

The Discriminant Factor Analysis showed clearly the differences in intramuscular fat distribution between Corriedale and Merino lambs. The classification matrix from the DFA using the IMF% of ST, SM, BF, RF and G shows 90% of correct.

REFERENCES

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Table 1. Muscle weight and percentage of each muscle in total muscle weight in the two breeds.

	Corriedale n=52		Merino n=25	
	Weight (g)	% Mean±DS	Weight (g)	% Mean±DS
SM	216±39 a	33.9±1.84 a	187±29 b	34.4±2.56 a
ST	44±10 a	7.1±1.20 a	37±8 b	7.0±0.90 a
BF	184±34 a	28.8±1.97 a	151±26 b	28.5±2.24 a
RF	111±22 a	18.0±1.52 a	93±19 b	17.9±1.58 a
G	81±16 a	12.2±1.68 a	69±14 b	12.2±2.03 a
Total	633±110 a		547±86 b	

a,b Means with different letters within the same variable are significantly different (p<0.05)

Table 2. Intramuscular fat (%) in the muscles from the two breeds

Muscle	Corriedale	Merino
SM	2.0±0.41 a	2.2±0.49 b
ST	2.2±1.03 a	2.0±0.41 a
BF	2.5±0.67 a	2.7±0.42 a
RF	2.1±0.52 a	2.5±0.54 b
G	2.2±0.47 a	2.3±0.47 a

a,b Means with different letters are significantly different (p<0.05)

Table 3. Intramuscular fat weight in the different muscles and percentage of the total IMF weight.

	Corriedale		Merino	
	IMF g	% IMF	IMF g	%IMF
SM	4.3±1.21 a	30.8±5.40 a	4.2±1.30 a	32.0±4.39 a
ST	1.0±0.62 a	7.1±4.11 a	0.8±0.19 a	5.85±0.89 a
BF	4.6±1.40 a	32.5±5.82 a	4.1±0.96 a	31.5±3.42 a
RF	2.4±0.80 a	16.7±3.26 a	2.4±0.80 a	18.4±3.80 a
G	1.8±2.41 a	12.9±2.53 a	1.6±0.37 a	12.3±2.53 a
Tot	14.1±3.29 a	14.1±3.29 a	13.0±2.94 a	13.0±2.94 a

a Means with different letters are significantly different (p<0.05)

Table 4. Classification matrix from DFA. Percentage of correct considering the different variables.

Variables	Corriedale	Merino
G1% in SM & BF	60	67
G1% in SM, ST, BF, RF & G.	85	90
G1g in SM, ST, BF, RF & G.	80	70
Distribution (%) of IMF	75	79