

Influence of crossbreeding on meat production, growth, meat quality, and carcass traits within sheep fed the same diet

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Introduction

Means of improving the efficiency of meat production and product quality are being actively sought by the sheep industry. Our objective was to determine the effect of crossbreeding on meat production traits of sheep.

Material & Methods

Purebred (Vologograd breed, n=30) and crossbred (F₃, Vologograd x ¼ North Caucasian breed, n=30) sheep were fed for 60 days from the age of 8 months. The diet was the same for both groups and included: a dry fodder of mixed herbs, green-cut fodder, stock feed of barley, and salt. The materials obtained in the experiment was biometrically processed used the t Test method (at p>0,05; p>0,01; p>0,001).

Results

The initial liveweight for purebred sheep was 42.39±0.38 kg and for crossbred sheep was 44.41±0.47 kg (P>0.01). The final liveweight for crossbred sheep were heavier (P>0.001). The weight of carcasses was greater for crossbred sheep than the weight of carcasses purebred sheep (P>0.05). Compared with purebred sheep, crossbred sheep had a lower amount of internal fat. Breed had a significant influence on meat/bone. The weight of meat from purebred sheep was less than crossbred sheep (P>0.05) while the weight of bone was almost the same. The food energy value for the meat of purebred sheep was greater than the meat of crossbred sheep. Total moisture in the meat of purebred sheep was lower (P>0.05), total protein was a little higher, and lipids were higher (P>0.05) than in the meat of crossbred sheep. The meat of purebred sheep had a lower concentration of non-replaceable amino acid compared with meat of crossbred sheep, and a lower concentration of replaceable amino acid.

Items	Purebred sheep	Crossbred sheep
The initial liveweight , kg	42.39±0.38	44.41±0.47
The final liveweight, kg	50.10±0.43	52.40±0.36
The weight of carcasses, kg	20.67±0.76	22.87±0.53
Amount of internal fat , kg	1.18±0.35	0.92±0.27
The weight of meat, kg	16.12±0.63	18.28±0.43
The weight of bone , kg	4.55±0.57	4.59±0.38
The ratio of meat/bone	5.54	3.98
The food energy value for the meat, kcal	259.36±16.78	233.85±11.10
Total moisture in the meat, %	60.11±0.67	63.05±0.65
Total protein , %	17.71±0.77	17.63±0.24
Lipids were higher, %	20.73±0.73	17.89±0.82
Non-replaceable amino acid, g	12.47	17.20
Replaceable amino acid , g	23.08	26.84

Conclusion

Crossbred sheep had a higher meat production and the meat of crossbred sheep had a lower lipids and had a higher concentration of amino acids. In conclusion, the results of this study can be used to improve meat production and meat quality by the sheep industry.

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