

Growth Performance and Survival Rates of Un-weaned F₁ German Blackheaded Mutton x Turcana Crossbred Lambs under Organic Production

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Abstract. The current research aimed to evaluate the effects of crossbreeding the Romanian native Turcana (TA) sheep breed ewes with meat specialized German Blackheaded Mutton (GB) rams on growth and survival rates in un-weaned F₁ crossbred lambs reared under organic production system. At the age of 28 days the crossbred lambs registered average body weights of 10.1±0.21 kg, while the TA purebreds achieved weights of 8.0±0.147 kg, differences between the two groups being significant ($p \leq 0.001$). Survival rate of the lambs was not affected by genotype ($p \geq 0.05$), both crossbred and purebreds have registered values of 91.6±0.04% and 93.9±0.04%, respectively. Throughout crossbreeding the indigenous Turcana ewes with German Blackheaded Mutton rams under organic production system the performance for meat production is significantly improved.

Keywords: un-weaned lambs, German Blackheaded, growth rate, organic production, Turcana

Introduction. Organic lamb meat production it is becoming more and more important in the highlands of Romania, due to additional subsidies offered by the government for turning to organic production systems rather than conventional practice, and also due to the consumers increasing demand for organically reared lamb meat. Turcana breed is currently representing 91.7% of the sheep reared in western Romania and 98.8% of the breeding ewes reared in the highlands of Banat region (Padeanu, 2012). In order to be registered and be able to produce organically lamb meat, several conventional practices are being band, e.g. the use of antibiotics and chemical fertilizers on pastures. Because of the restrictions, farmers major concerns lies with the overall profitability of their farms and production levels registered, with special emphasis on growth rates and survival rates of the lambs (Sauer *et al.*, 2013). Currently the standards for organic sheep farming are detailed by the "Organic Farming Regulations of the European Community" and are being stipulated in the Council Regulation (EC) No 834/2007 (2).

Aims and Objectives. The current research aimed to evaluate the effects of crossbreeding the Romanian native Turcana (TA) sheep breed ewes with meat specialized German Blackheaded Mutton (GB) rams on growth and survival rates in un-weaned F₁ crossbred lambs reared under organic production system.

Materials and Methods. The study was carried out at the Research and Development Station for Sheep and Goats of the Romanian Academy for Agricultural and Forestry Sciences from Caransebes, between years 2012 and 2013. The following traits were studied: body weight of the lambs at birth (BW); body weight of the lambs at 28 days of age (W28); lambs' weight gain from birth until 28 days of age (MA) and survival rates of the lambs (SR). Both F₁ German Blackheaded Mutton x Turcana crossbreds (n=36) and Turcana

controls (n=32) lambs were produced and reared under organic production system. Organic lamb meat production system was replicated based on the regulations stipulated by the Council Regulations of the European Commission and national laws and regulations. Data were statistically analyzed by non-parametrical Mann-Whitney test using Mini Tab 14® software. The study was performed in accordance with the EU Directive 2010/63/EU for animal experimentation (4).

Results and Discussions. Results regarding body weight, average daily gain and survival rates of F₁ German Blackheaded Mutton x Turcana and Turcana purebred lambs are presented in *Table 1*. Crossbred lambs registered an averaged body weight at birth of 4.2±0.15 kg, significantly more increased (p≤0.05) when compared with the TA controls, which registered on average 3.6±0.08 kg. Weight gain from birth until the age of 28 days was significantly (p≤0.001) influenced by the lambs' genotype, with F₁ German Blackheaded Mutton x Turcana crossbreds registering 5.8±0.10 kg and purebreds gaining 4.3±0.10 kg. At the age of 28 days the crossbred lambs registered average body weights of 10.1±0.21 kg, while the TA purebreds achieved weights of 8.0±0.147 kg, differences between the two groups being significant (p≤0.001). Survival rate of the lambs was not affected by genotype (p≥0.05), both crossbred and purebreds have registered values of 91.6±0.04 % and 93.9±0.04 %, respectively.

Tab. 1

Body weight, average daily gain and survival rates of F₁ German Blackheaded Mutton x Turcana (GB x TA) and Turcana (TA) purebred lambs

Genotype	n	Birth weight (kg)	Weight at 28 days (kg)	Average daily gain 0-28 days (g)	Weight gain 0-28 days (kg)	Survival rates 0-28 days (%)
F ₁ GB x TA	36	4.28±0.158	10.14±0.219	202.81±7.160	5.89±0.101	91.67±0.046
TA	32	3.68±0.084	8.06±0.147	156.06±3.700	4.38±0.104	93.94±0.042
Differences		*	***	***	***	NS

Conclusion. Throughout crossbreeding of the indigenous Turcana ewes with German Blackheaded Mutton rams under organic production system the performance for meat production is significantly improved without negatively affecting the organic resistance.

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