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RESULTS CONCERNING THE GROWING DYNAMICS IN YOUNG SHEEP HYBRID SUFFOLK x TSIGAI AND TSIGAI, FROM LAMBING TO WEANING

REZULTATE PRIVIND DINAMICA DE CREŞTERE A TINERETULUI OVIN HIBRID SUFFOLK x ŢIGAIE ŞI DIN RASA ŢIGAIE DE LA FĂTARE LA ÎNŢĂRCARE

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The comparative results of the growing dynamics of the Suffolk x rusty Tsigai hybrids, and rusty Tsigai pure breed young sheep from lambing to weaning are comparatively presented in this paper. The average values, variability estimates and differences between the average values of both breed structures and those performed by the offspring of three Suffolk rams used in reproduction are apart presented by male and female young sheep. The following traits were recorded: the body weight (at lambing, 60 days of life, and weaning), total gain and average daily gain from lambing to weaning. The average weaning age was between 84 and 89 days, function of sex. Positive differences, statistically assured were recorded in Suffolk x Tsigai hybrids of both sexes ($p<0.01$ and $p < 0.001$) compared to rusty Tsigai young sheep in all analyzed traits, except lambing weight. Statistically not significant differences were recorded in all analyzed traits between the hybrid offspring of the three Suffolk rams used for reproduction, and also between male and female offspring within both breed structures.

Key words: young sheep, body weight, Suffolk x Tsigai hybrids, Tsigai

Introduction

The commercialized sheep meat from hybrids with carcasses fully satisfying consumers' qualitative exigencies has the highest share worldwide. In the mean time with Romania accession to EU, the share and economic efficiency of sheep meat export will be determined by the quality of carcasses and level of genuine sheep hybridizing with meat sheep breeds from import.

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In Romania, the experiences of hybridizing genuine breeds with Suffolk rams were performed during 1965 – 1980 at ICPCOC Palas – Constanța, IAS Dumitra, Bistrița – Năsăud, and IAS Nima Cluj with the aim of obtaining fattening lambs (Pop A., et al., 1976; Ionescu A. et al., 1985; Mireşan E., 1982, Pădeanu, I., 2002).

In 2003, the Association of the Seep Breeders Dobrogea imported 40 Texel Cullard and Suffolk rams from Belgium, for using in crossings with Merino of Palas breed. In 2004, the University of Agricultural Sciences and Veterinary Medicine Cluj – Napoca imported 6 Sufolk and 2 Laitière Belge rams destined to crossings with rusty Tsigai from SCDCP Jucu – Cluj. In 2006, SCDCOC Reghin - Mureş bought several Suffolk rams for crossings with Tsigai breed (Dragomirescu M., 2007; Vlaic A. et al., 2004, Ilişiu Elena, 2007, cited by Pop A., 2007).

The Soffolk x Merino of Palas hybrids obtained at ACO Dobrogea, in 2006, recorded the following performances concerning the meat production: lambing weight 3.37 – 4.90 kg; weaning weight (67 days) 18.20 – 21.00 kg; weight gain from lambing to weaning 221 – 240 g/day; average daily gain during fattening (78 days) 245.52 g/day and slaughtering yield 46.32 – 57.00% (Dragomirescu M., 2007). Ilişiu Elena, in 2007, performed at SCDCOC Reghin a 100 days fattening trial. The Suffolk x Tsigai hybrid lambs were used, and the following performances were recorded: the weight in the beginning of fattening 17.31 kg; the weight in the end of fattening 41.14 kg and average daily gain during fattening 238.25 g. In both fattening experiences, the hybrid lambs recorded superior performances compared to maternal breeds (Merino of Palas and Tsigai, respectively).

Materials and Methods

57 Suffolk x Tsigai hybrid lambs and 26 Tsigai lambs of both sexes, obtained at SCDCP Jucu, county of Cluj in 2007 represent the biological material used in our research. Both hybrid and Tsigai (control group) lambs received the same maintaining conditions, semi intensive system (foraging in shelter and on pasture) from lambing up to weaning. The lambs were weaned at 03.06.2007 and had average ages between 84 days and 89 days, function of sex and breed structure. During lambing to weaning period, besides maternal milk, the lambs benefit of growing combined forage supplements from ABO MIX S.A, Satu Mare.

The lambs were weighted at 14 days intervals up to 29.07.2007, and body weight was recorded.

The average values and estimates of the variability, in both hybrid and Tsigai lambs, by sexes and also in offspring of Suffolk rams used in reproduction through directed mating, were estimated.

Using the “t” test (Student), the significance of the differences between the average values of the hybrids and Tsigai lambs, between the offspring of the three Suffolk rams and between both sexes within each breed structures were tested. The following traits were aimed: lambing weight, weight at 60 days of age, weaning weight, total gain and average daily gain from lambing to weaning.

Results and Discussions

The evolution of the body weight in male young sheep of both studied breed structures is presented in table 1. At lambing, the body weight of the hybrids is 0.25 kg (7%) lower compared to Tsigai lambs. In older ages, due to heterosis effect, the hybrids recorded bigger growing rate, having 1.24 kg (8.8%) superior weight compared to Tsigai lambs at 60 days of age and 3.61 kg (20.9%) at weaning.

Table 1

The evolution of the body weight in male young sheep

Trait	Isue	n	$X \pm s_X$	s	V%	The difference ±d
Lambing weight, kg	Suffolk x Tsigai	26	3.35 ± 0.12	0.63	18.79	-
	Tsigai	17	3.60 ± 0.13	0.55	15.27	- 0.25 n.s.
The weight at 60 days of age, kg	Suffolk x Tsigai	26	15.48 ± 0.27	1.40	9.07	
	Tsigai	17	14.23 ± 0.31	1.27	8.96	+ 1.24***
The weight at weaning, kg	Suffolk x Tsigai	25	20.88 ± 0.56	2.82	13.50	
	Tsigai	17	17.26 ± 0.42	1.75	10.14	+ 3.61 ***
Total growing gain from lambing to weaning, kg	Suffolk x Tsigai	25	17.54 ± 0.50	2.49	14.22	
	Tsigai	17	13.66 ± 0.56	2.32	16.98	+ 3.88 ***
Average daily gain from lambing to weaning, g	Suffolk x Tsigai	25	195.88 ± 5.75	28.75	14.67	
	Tsigai	17	163.20 ± 7.13	29.40	18.01	+ 32.68***

*The average age of the hybrid males at weaning was of 89.56 days
The average age of the Tsigai males at weaning was of 84 days

The total growing gain of the Suffolk x Tsigai hybrid lambs, from lambing to weaning is with 3.88 kg (28.4%) bigger compared to the gain recorded in male Tsigai lambs.

The male Suffolk x Tsigai lambs recorded 195.88 g average daily gain from lambing to weaning with 32.68 g (20%) bigger than Tsigai male lambs.

The data from table 2, where the evolution of the body weight of the female young sheep from both breed structures is presented, show similar to males dynamics of the body weight evolution, mentioning that the differences between the average values of the hybrid and Tsigai females are light bigger compared to males. Both, in males and females (tables 1 and 2), the differences are positive and statistically assured ($p < 0.01$ and $p < 0.001$) in advantage of the Suffolk x Tsigai hybrids in all traits, except lambing body weight, where the differences were not significant.

The same positive and statistically very significant differences were recorded between the hybrid and Tsigai lambs of both sexes (males and females) in all studied traits, except the lambing body weight, where negative and statistically not significant difference (- 0.29 kg) was recorded, in advantage of hybrid lambs.

Table 2

The evolution of the body weight in female young sheep

Trait	Isue	n	$X \pm s_X$	s	V%	The difference ±d
Lambing weight, kg	Suffolk x Tsigai	31	3.11 ± 0.09	0.51	16.43	
	Tsigai	9	3.40 ± 0.18	0.54	15.88	- 0.29 n.s.
The weight at 60 days of age, kg	Suffolk x Tsigai	31	15.38 ± 0.31	1.72	11.76	
	Tsigai	9	13.77 ± 0.41	1.23	8.91	+ 1.61**
The weight at weaning, kg	Suffolk x Tsigai	30	20.88 ± 0.43	2.37	11.34	
	Tsigai	9	16.50 ± 0.40	1.20	7.26	+ 4.38 ***
Total growing gain from lambing to weaning, kg	Suffolk x Tsigai	30	17.73 ± 0.41	2.23	12.60	
	Tsigai	9	13.20 ± 0.70	2.11	15.98	+ 4.53 ***
Average daily gain from lambing to weaning, g	Suffolk x Tsigai	30	199.96 ± 4.17	22.87	11.44	
	Tsigai	9	151.70 ± 6.80	20.42	13.46	+ 48.26***

*The average age of the hybrid females at weaning was of 88.46 days
The average age of the Tsigai females at weaning was of 87 days

The test of the significance of the differences between the averages values recorded in hybrid and Tsigai young sheep males and females, reveals positive differences in advantage of the males in majority of traits, but statistically not significant. The evolution of the body weight in male hybrid offspring obtained from three Suffolk rams used in directed mating is presented in table 3.

The bigger average values in all analyzed traits were recorded in offspring of the ram 3 and the smallest in offspring of the ram 1. The offspring of the ram 3 realized the following average values: 3.54 kg weight at lambing; 15.69 kg body weight at 60 days of age; 21.69 kg body weight at weaning; 18.15 kg total gain, and 201.53 g average daily gain from lambing up to weaning. The differences between the male offspring of the rams 2 and 3 compared to the offspring of the ram 1 are positive but statistically not significant in all studied traits.

Table 3

The evolution of the body weight in male offspring of three Suffolk rams

Trait	Ram	n	X ± s_X	s	V%	The difference ±d
Lambing weight, kg	B_1	4	2.87 ± 0.24	0.48	16.65	-
	B_2	9	3.28 ± 0.24	0.71	21.72	+ 0.40 n.s
	B_3	13	3.54 ± 0.15	0.56	15.75	+ 0.66 n.s.
The weight at 60 days of age, kg	B_1	4	14.37 ± 1.24	2.49	17.36	-
	B_2	9	15.66 ± 0.38	1.15	7.31	+ 1.29 n.s.
	B_3	13	15.69 ± 0.30	1.09	6.95	+ 1.38 n.s.
The weight at weaning, kg	B_1	4	18.50 ± 1.85	3.69	19.98	-
	B_2	8	20.75 ± 0.84	2.37	11.45	+ 2.25 n.s.
	B_3	13	21.69 ± 0.71	2.56	11.81	+ 3.19 n.s.
Total growing gain from lambing to weaning, kg	B_1	4	15.62 ± 1.76	3.52	22.56	-
	B_2	8	17.50 ± 0.67	1.91	10.90	+ 1.87 n.s.
	B_3	13	18.15 ± 0.65	2.36	13.03	+ 2.53 n.s.
Average daily gain from lambing to weaning, g	B_1	4	176.20 ± 22.34	44.68	25.39	-
	B_2	8	196.62 ± 8.90	25.20	12.81	+ 20.62 n.s.
	B_3	13	201.53 ± 6.89	24.84	12.32	+ 25.54 n.s.

The evolution of the body weight in female offspring of all three Suffolk rams is presented in table 4.

Table 4

The evolution of the body weight in female offspring of three Suffolk rams

Trait	Ram	n	X ± s_X	s	V%	The difference ±d
Lambing weight, kg	B_1	9	3.17 ± 0.18	0.56	17.65	-
	B_2	12	3.17 ± 0.13	0.44	14.01	0.00 n.s
	B_3	10	3.00 ± 0.18	0.58	19.24	- 0.17 n.s.
The weight at 60 days of age, kg	B_1	9	15.64 ± 0.70	2.42	13.54	-
	B_2	12	15.37 ± 0.49	1.72	11.19	- 0.27 n.s.
	B_3	10	15.15 ± 0.46	1.45	9.60	- 0.49 n.s.
The weight at weaning, kg	B_1	9	21.05 ± 1.02	3.07	14.56	-
	B_2	11	21.14 ± 0.70	2.33	11.05	+ 0.09 n.s.
	B_3	10	20.45 ± 0.58	1.83	8.96	- 0.60 n.s.
Total growing gain from lambing to weaning, kg	B_1	9	17.89 ± 0.99	2.98	16.64	-
	B_2	11	17.86 ± 0.61	2.03	11.34	- 0.03 n.s.
	B_3	10	17.45 ± 0.59	1.88	10.76	- 0.44 n.s.
Average daily gain from lambing to weaning, g	B_1	9	201.44 ± 10.68	32.04	15.90	-
	B_2	11	200.54 ± 5.92	19.63	9.78	- 0.90 n.s.
	B_3	10	198.00 ± 5.82	18.40	9.29	- 3.44 n.s.

The bigger average values were recorded in female offspring of the ram 1, and the smallest in female offspring of the ram 3. The differences recorded in all analyzed three rams offspring are statistically not significant in all traits.

Conclusions

1. The average values realized by the Suffolk x Tsigai and Tsigai pure breed young sheep frame within the limits cited by literature in both breed structures.
2. The Suffolk x Tsigai hybrids of both sexes, recorded positive differences, distinctly and very significant, compared to rusty Tsigai young sheep in all analyzed traits, except body weight at lambing.
3. The differences between the average values of males and females in both hybrid and Tsigai lambs are positive in advantage of the males for majority of traits, but statistically not significant.
4. Between the offspring of the three Suffolk rams used for directed mating, positive or negative differences were recorded in all analyzed traits, but statistically not significant.

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