Researches Regarding Growth Speed in Crossbreeds Lambs Lacaune x Spanca Reared in the Westen Area of Romania

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Abstract
Aim of this paper was the monitoring of average daily weight gain, from birth until 35 days, of crossbreeds Lacaune x Spanca lambs. Researches were carried out in S.C. Unicon 2000 3N SRL from Arad County. Results of the present study revealed that body weight at birth, 9 and 35 days, and average daily weight gain 10 to 35 days and 0 to 35 days are significantly higher in crossbreed lambs Lacaune x Spanca born as singles (n=9), comparative with those born as doubles (n=6). Results suggest that single lambs crosses between Lacaune and Spanca during first 35 day of life, achieve on average daily weight gains of 232 g, a value very similar to the value of the Lacaune standard breed for meat-blood line (246 g).

Keywords: average daily gain, crossbreeds, Lacaune, Spanca

1. Introduction

In Romania the consume of sheep milk products is low, mainly because only a small amount of the milk is processed in milk products, thus an surplus of sheep milk and dairy products from it exists.
Foreign market for the quality dairy products obtained from sheep and goat milk is extremely favorable, few European countries are exporting this type of products outside the E.U.
Only four countries great producers of sheep milk (Italy, Greece, Spain and France) are producing superior ewe cheeses that are exported outside the EU boundaries, very expensive products which are exported especially in USA and Canada. [1]
Nowadays a very important opportunity of producing a great amount of high quality sheep milk exists.

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The major way to improve milk production is crossbreeding indigenous sheep breeds witch register low milk productions (80-120 kg/lactation) with specialized sheep dairy breeds. [2]
For example, the French Lacaune breed, which produces on average 250-270 liters /lactation, and udder of the ewes, has better aptitudes for mechanical milking.
Aim of this paper was to study the growth speed in crossbreed lambs Lacaune x Spanca from birth to 35 days of life.

2. Materials and methods

Current study was carried out in SC UNICOM 2000 3N SRL, on 9 crossbreed lambs of Lacaune x Spanca (a indigenous population resulted from crosses of Merino and Tigaia breeds) born as singletons and 6 lambs from double lambing. Lambs studied were weaned at an early age at 35 days. This weaning system is common for lambs produced by ewes specialized in milk production.

In order to evaluate growth speed of the crossbreed lambs, were pursued body weight and average daily gain during periods 0-9 days and 10-35 days. Measurements were made during morning time, at the same hour each time, using an electronically scale which had a precision of 0.05 kg. Mann Whitney test was used for testing the differences. [3]

3. Results and discussion

Lacaune breed, milk specialized blood line numbers over 500 thousand breeding ewes, being most popular dairy sheep breed in France.

Using rams from this breed, that were imported in Romania from a Hungarian farm, crosses were conducted using ewes from our native Spanca population, in Arad County.

From Spanca ewes crossed with Lacaune rams, 15 lambs were taken into study, from which 9 were born as singles and 6 as doubles, all lambs were born from grouped lambing during a 2 days interval.

Results regarding body weight evolution of crossbreed Lacaune x Spanca lambs, born as singles or as doubles are shown in Table 1.

Thereby, crossbreed lambs from single lambing registered weights of 4.28 kg, significantly greater ($p<0.001$) with 1.3 kg (43.62%) than those lambs born as doubles.

During the first 9 days after birth, difference between body weight of the lambs born as simples or doubles has been almost the same, of 1.25 kg. Crossbreed lambs from simple births achieved an average body weight of 6.38 kg, while those born as doubles had on average 5.13 kg, less with 24.36%, value very significant statistically ($p<0.001$). At 35 days this difference advanced more.

With an average body weight of 12.40 kg, singletons lambs exceed significantly ($p<0.001$) with 1.77 kg (16.65%) the lambs born as doubles (10.63 kg). In Lacaune x Spanca crossbreed lambs variability of the body weight is situated in normal limits (averages), ranging between 9.46 to 14.08%.

Average daily gain and differences significance for body weight between crossbreed lambs Lacaune x Spanca born as singles or as doubles are presented in Table 2.

Average daily gain has and similar evolution to the one that body weight registers.

During first 9 days of life, crossbreed Lacaune x Spanca lambs had registered an high average daily gain of 233.33 g/day in singleton lambs and of 238.88 g/day in those born as doubles, difference of 5.55 g/day being insignificantly ($p>0.05$).

During the interval of 10 to 35 days, average daily gain is similar to the values recorded in the first segment. Thus, single born lambs had a daily gain of 240.08 g/day, and exceed significantly ($p<0.001$) the lambs born as twins (220 g/day) with 20.08 g/day.

During entire period (0-35 days) lambs born as singles achieved an average daily gain of 232 g/day, significantly greater ($p<0.05$) compared with lambs born as doubles who registered on average 218.57 g/day (13.43 g /day difference). This average daily gain could be comparable with the one achieved by the pure breed Lacaune (meat blood line) according to this breed standard from France.

A similar experiment was conducted in SDCOC Caransebes [4] in order to establish evolution of the growth rate in crossbreeds of Lacaune x Turcana. Results shown that body weight at birth and at weaning (2 mounts) did not differ significantly ($p>0.05$) between crossbreed labs Lacaune x Turcana, but at the age of 6 and 8 months the body weight is significantly higher in both male and female crossbreed lambs ($p<0.001$).

Table 1. Differences significance for the body weight of Lacaune x Spanca crossbreeds lambs born as singles or as twins

Body weight	Lambing type	n	$\overline{X} \pm S\overline{x}$	CV %	Differences		Mann-Whitney test significance
					absolute (kg)	relative (%)	
Lambing	simple	9	4.28 ± 0.19	13.43	1.30***	43.62	p<0.001
	double	6	2.98 ± 0.15	12.62			
9 days	simple	9	6.38 ± 0.28	13.09	1.25***	24.36	p<0.001
	double	6	5.13 ± 0.06	13.07			
35 days	simple	9	12.40 ± 0.58	14.08	1.77***	16.65	p<0.001
	double	6	10.63 ± 0.24	5.46			

Table 2. Differences significance for the average daily gain of Lacaune x Spanca crossbreed lambs born as singles or as twins

Average daily gain	Lambing type	n	$\overline{X} \pm S\overline{x}$	CV %	Differences		Mann-Whitney test significance
					absolute (kg)	relative (%)	
Birth - 9 days	simple	9	233.33 ± 18.04	26.51	- 5.55	2.37	p>0.05
	double	6	238.88 ± 13.51	15.45			
10 - 35 days	simple	9	240.08 ± 12.64	16.38	20.08	9.12	p<0.5
	double	6	220.00 ± 8.47	9.80			
Birth - 35 days	simple	9	232.00 ± 12.75	17.21	13.43	6.14	p<0.05
	double	6	218.57± 4.64	8.35			

4. Conclusions

Body weight in crossbreed Lacaune x Spanca lambs at birth (4.28 kg and 2.98 kg), at 9 days (6.38 kg and 5.13 kg) and at 35 days (12.40 kg and 10.63 kg) is significantly higher ($p<0.001$) in lambs born as single, comparing with lambs born as doubles;

Average daily gain is significantly higher ($p<0.05$) only in the period 10-35 days in crossbreed Lacaune x Spanca lambs born as singles, comparative with those born as doubles;

For the entire experimental period (0-35 days) lambs that were born as singles achieved and daily gain of 232.00 g/day, with 13.43 g (6.14 %) more ($p<0.005$) than those born as doubles (218.57 g/day).

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