

STUDY REGARDING MILKING SPEED, AT A SHEEP POPULATION RESULTED FROM CROSSING AWASSI RAMS WITH TIGAIE EWE

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Abstract

The objective of this study was to determine milking speed at F1 hybrid sheep population resulting from crossing of the local sheep with Awassi rams. Research has been carried out on a herd of 115 hybrids sheep Aw x Ti and 140 Tigaie breed sheep first being determining the total duration of milking and based on the obtained values we calculate the milking speed. The results of the research put in light the fact that milking speed recorded an increasing dynamics starting with first lactation up to sixth lactation, both at hybrids Aw x Ti population and at Tigaie population. So, while mean milking speed at Aw x Ti sheep in sixth lactation was of 12.33 ml/sec, at Tigaie breed sheep this parameter had a higher value with 9.57 %. The mean duration of total milking at a hybrid population in sixth lactation was 58.14 seconds at an average production of 641.22 ml milk per day per sheep.

Key words: Tigaie, Awassi, milking speed

INTRODUCTION

Efficiency of sheep milk production can be achieved by raising the individual average, but also by ensuring a high milk quality according to [2], complying with the E.U. requirements.

According to European standards of quality, the total number of germs (TNG) in a normal milk must be under 100.000 / ml, and somatic cell count below 400.000 / ml [1].

The purpose of this research is to obtain a high quality milk by studying the characteristic speed of milk extraction, in order to determine if the mechanical sheep milking is suitable or not, for the studied population.

MATERIAL AND METHODS

The study took place at S.C.D.C.O.C. Secuieni-Bacău, research being conducted on a herd of 140 Tigaie rusty variety breed and 115 F1 female half casts, resulting from

mating Awassi rams with Tigaie rusty variety breed.

Measurements regarding milk extraction rate, were made in 2011, while the official milk production control was based on the U.E control methodology [3].

The resulting data were statistically processed using Microsoft Excel 2007 by applying ANOVA (unifactorial dispersion analysis) methodology [4].

RESULTS AND DISCUSSIONS

Estimation of milk extraction rate was achieved by timing the milking duration and quantitative determination of harvested milk, in the four controls of milk production.

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Table 1 Milk extraction rate and milk production obtained from Tigaie sheep

Tigaie sheep	n	Control 1		Control 2		Control 3		Control 4	
		Milk qty. ml/day/head	Milk extraction rate s	Milk qty. ml/day/head	Milk extraction rate s	Milk qty. ml/day/head	Milk extraction rate s	Milk qty. ml/day/head	Milk extraction rate s
2004 generation	11	549.84	49.59	596.10	53.41	541.23	48.40	470.75	42.22
2005 generation	12	550.38	50.48	588.35	54.03	542.48	49.81	469.00	43.03
2006 generation	18	545.77	52.77	585.55	56.68	534.27	51.72	474.75	45.96
2007 generation	34	503.03	52.48	544.28	56.99	483.54	50.63	419.31	43.91
2008 generation	37	503.51	50.69	538.06	54.18	481.44	48.48	406.10	40.90
2009 generation	28	485.49	53.35	523.95	57.58	463.09	50.89	400.52	44.01

Analyzing the data presented in Table 1 we see that the average milk extraction rate for the studied Tigaie sheep was under a minute which is positively correlated with the productive capacity. The average value recorded for the Ist lactation was between 44.01 and 57.58 seconds,

and minimum value recorded was 30.39 seconds. For IInd lactation the average value recorded was between 40.90 and 54.18 seconds, and while the maximum recorded value was 77.46 seconds for a sheep with a total milk production/lactation of 131.12 kg.

Table 2 Milk extraction rate and milk production obtained from Aw x Ti sheep

Aw x Ti sheep	n	Control 1		Control 2		Control 3		Control 4	
		Milk qty. ml/day/head	Milk extraction rate s	Milk qty. ml/day/head	Milk extraction rate s	Milk qty. ml/day/head	Milk extraction rate s	Milk qty. ml/day/head	Milk extraction rate s
2004 generation	7	749.35	60.78	812.17	65.87	722.43	58.61	583.33	49.80
2005 generation	7	762.81	62.99	825.63	68.19	731.40	60.44	578.84	47.82
2006 generation	38	767.07	65.80	826.58	70.85	734.00	63.26	576.13	49.52
2007 generation	7	762.81	72.75	830.12	79.69	735.89	70.93	551.92	53.20
2008 generation	28	748.23	74.06	808.81	80.00	719.06	71.07	553.04	54.63
2009 generation	28	733.65	72.78	799.83	79.05	704.48	69.90	551.92	55.07

As seen from data presented in Table 2, hybrid sheep had higher milk production than Tigaie sheep, milking duration for this population averaged about 66 seconds. The average value recorded for the Ist lactation was between 55.07 and 79.05 seconds, and minimum value recorded was 28.04 seconds

that had a milk production / total lactation of 97.15 kg. For IInd lactation the average value recorded was between 54.63 and 80.00 seconds, and while the maximum recorded value was 99.50 seconds for a sheep with a total milk production/lactation of 167.64 kg.

Table 3 Extraction rate of milk of a studied sheep populations (mm/s)

Specification	n	Average \bar{X}	Standard Deviation s	Average standard error $\pm s\bar{X}$	Variability V %	Limits	
						Min.	Max.
Tigaie sheep	140	9.90***	0.63	0.05	6.31	9.10	11.19
Aw x Ti sheep	115	10.88***	0.86	0.08	7.87	9.66	12.33

*** - highly significant differences statistically $F_{0.001} (11.08) < \hat{F} (110.79)$

The data presented in Table 3 shows that the half-breed population's milk extraction rate is higher, between that two studied populations

being highly significant differences statistically $\{***F_{0,001}(11.08) < \hat{F}(110.79)\}$ for this character.

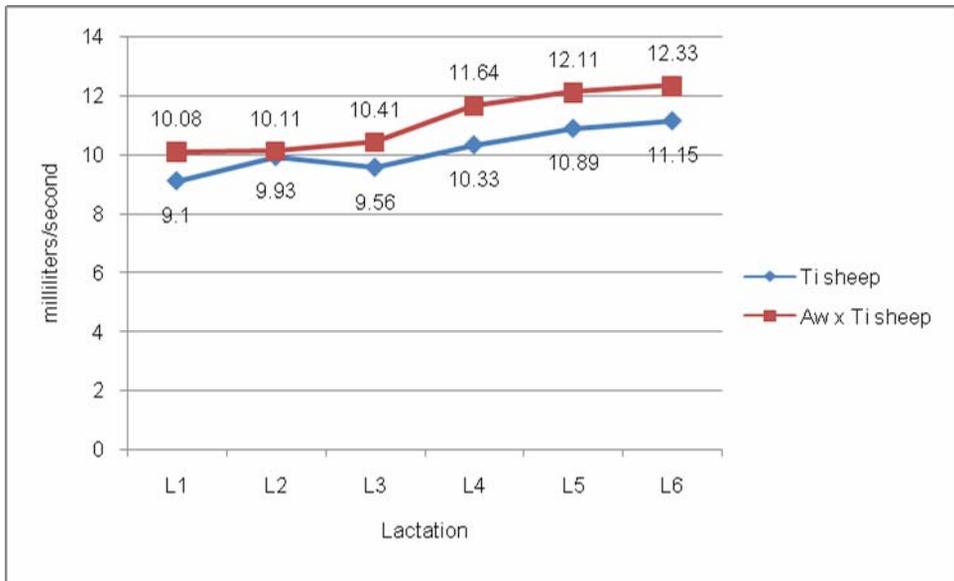


Figure.1 The dynamic of extraction rate according to lactation

So, for the results presented in the graphic above, we see that the extraction rate of milk for Aw x Ti sheep increase from first lactation until the sixth lactation, highest increase recorded between the third and fourth lactation. At the Tigaie sheep the highest increase was still between the third and fourth lactation, but at this population the increase between the first and the sixth lactation was not linear, so that between second and third lactation was a slightly decrease.

CONCLUSIONS

1. The average speed of milk extraction for both populations, provide an optimal duration of milking between 30 and 90 seconds, placing in the normal action of hormone (oxytocine), that provides milk ejection and removal.

2. Aw x Ti sheep population are susceptible to mechanical milking, and this is supported by the values recorded of milk speed extraction, ranged from 9.66 to 12.33 ml / second.

3. The importance of milk extraction rate (inherited aptitude $h^2 > 0.56$) in the application of modern sheep exploitation, recommend to use this character on the selections work.

4. Milk extraction rate is positively correlated with milk production and is reduced during lactation, normal physiological response.

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