STUDY ON MEAT/ MILK PRODUCTIVE PERFORMANCES IN ROMANIAN RATCA SHEEP UNDER EXTENSIVE PRODUCTION

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Abstract: *The aim of this work is to perform studies on the lactogenic potential of the Ratca sheep. In order to evaluate the potential of milk production for the Ratca breed, looking at the actual conditions of the permanent pastures andby keeping the sheeps under extensive conditions, the official performance recording for milk production was done for inCaras-Severin and Timis counties,. Moreover, in order to obtain the production data necessary for a comparative technical-economic study between the Ratca and Turcanasheep breeds, the Turcana sheeps were also included in this work. The lower productive level of the Ratca compared to the Turcana breed is one of the main factors that led to the abandonment of the Ratca by the breeders. The production of milk for the two breeds was an average of 68.23 ± 2.33 kg for the Ratca sheep and 76.81 ± 2.99 kg for the Turcana, the differences between the two breeds were quite significant.*

Key words: *milk, production, Ratca, sheep-breedes, quality*

INTRODUCTION

In Europe, 40% of the animal species are exposed to the risk of vanishing in the next 20 years. The Ratca sheep-breed is also about to perish sooner or later, so at this point its under an national preservation plan, the reproduction number reached 2020 sheeps in 2012. The sheep-breeders are mostly interested in the meat processing but milk production is also taken into consideration, which takes us to another structure of the species, one which today is oriented towards both meat processing and milk production. Considering Romania's actual conjuncture, with exploitation directionstowards sheep breeding, the objectives of the improving programs also changed, which gives the first place to the increasingly level of the meat and milk productions.

Today, we can find almost 2000 Ratca sheeps on the West Side of the country, but half of them are hybrids. To stimulate the growth of Ratca sheeps, the State offers help to all the interested farmers. The young sheeps that are about to vanish are introduced to a genetic patrimony program so the breeders of such species benefit from a yearly subvention.

Ratca is considered to be a variety of the Turcana species. The female sheeps weight somewhere between 35 and 45 kg while male sheeps weight between 55 and 65 kg, their dimensions, however, are way lower that other selected species with a percentage between 103-110%.

These sheeps are raised mostly for the milk production, taking into consideration the conditions of the extensive growth, the sheepsmay produce about 60-80 litres of milk per a total milking during a year.

Due to the warm climate of the zone, the milk production is also favoured by a longer lactation.

To evaluate the potential of the milk production of the Ratca species, by considering the actual permament pastures, also by keeping the sheeps that are in the lactation process into extensive

conditions (low-input type), in the growth area of this very species (Caras-Severin and Timis Counties) there were lots official inspections just to increase the milk production.

MATERIALS AND METHODS

To gather production data needed to realize a techino-economical comparison study between Ratca and Turcana, we have introduced in this study the number of female sheeps owned by S.C.D.C.O.C Caransebes (control lot n=200). The number of Turcana sheeps was kept in the same conditions as the number of Ratca sheeps, so we can obtain the most accuracy for this study.

During the activity, there were a number of 4 inspections of the milk production. With this taken into consideration, the Ratca sheeps scored a medium production of milk per lactation of 68.23±2.33 kg, with the limits between 48.92 kg and 77.34 kg. The variety factor was, for this lot, of 16.20%, while the standard deviation of the milk production was at 8.14. The variety factor registered for the production of milk of the inspected lot indicates that there is a genetical ground (a variety) for an intense selection of the sheeps from Ratca species. While, for the sheeps of the Turcana species, raised in an extensive system, was recorded a medium production of milk per lactation of 76.81±2.99 kg (+8.58 kg compared to the medium of the Ratca lot), with limits between 64.67 kg and 92.01 kg. The variety factor for the inspected lot was at 14.23%, while the deviation standard for the milk production was at 11.23.

Looking at the bibliographical estimations, the recorded productions for both species were at their superior limit, considering the fact that at the Turcana species (7 ecotypes and 5 unknown varieties), the productive level varies extremely wide, due to the feeding level, growth system and the amelioration degree of the lot (the sheeps of the 2 experimental lots belong to the selected lot of the S.C.D.C.O.C Caransebes for milk production). The usual production after the official inspection of the two species, refers only the milk produced during the lactation process.

The production of milk that was used to feed the lambs was estimated through calculation of the lactation capacity of the lambs. Also we have to mention that weaning period of the lambs was made at 90±7 days. The testing between the differences of the two experimental lots (Ratca and Turcana) was made through Mann-Whitney method (non-parametric testing), with the limit of the significant differences set at 0.05. With this have been said, the sheeps from the Turcana species produced 8.58 kg more milk than the sheeps of the Ratca species, the registered differences were statistically significant (p=0.039). The inferior production level of the Ratca species compared to the Turcana, is one of the main reasons which led to abandonment of the Ratcaby the breeders. Therefore, the breeders which look to maximize their milk production, could practice a precocious weaning of the lambs, at the age of 40-60 days, considering the season they were born but also considering the stimulative feeding of the lambs starting with the age of 7-9 days. The majority of farmers that look after an increasing sheep production (milk, number of lambs, growth of the lambs, weight of the adults etc.), to which we have to add remarkable resistance of the sheeps from Turcana species (originary from the Carpathian Mountains) compared to the Ratca species (originary from the hillsides of the Caras-Severin County).

The quality of the milk coming from sheeps and the quantity of the main chemical components, are extremely important, specially due to the fact that the milk from this species is not directly commercialized, but mostly is sold through different products (cheese and yogurt), which gives more interest to the consumers of sheep dairy products as the nutritive value is very important here.

RESEARCH RESULTS

We have analyzed the following chemical parameters of the milk coming from sheeps, comparing both species: the percentage of fat from milk, the percentage of protein from milk, the percentage of lactose from milk and the percentage of dried degreased substance. The equipment used for the analysis of the milk were Milko Scan S50 (producer: FOSS) and MT02 (producer: AgroLegato IT).

Looking at the fat percentage, this was at 7.83±0.341% for the sheeps from Ratca species and 8.38±0.330% for the sheeps from Turcana, the differences between the two groups were statistically significant ($p \leq 0,05$). The results obtained indicate the fact that a strict selection has to be applied to the sheeps coming from Ratca species in order to increase the fat percentage from milk. This has to be done very carefully due the genetical correlation strongly negative between the production of milk and percentages of protein and fat coming from milk.

The medium level of protein was at 6.32±0.239% at the sheeps from the Ratca species and 5.91±0.246% at the sheeps from Turcana. Opposite to the percentage of fat from milk, at the percentage of protein the higher values come from the lot of Ratca sheeps, also the testing of the differences showed the fact that there are distinct significant differences ($p \leq 0.01$) between the two species. The level of protein is an extremely important factor looking at its nutritional value, but the additional protein from milk is not taken into consideration for additional paying in our country.

The medium level of lactose was at 4.06±0.240% for Ratca and at 4.23±0.161% for Turcana, the testing of the differences came out that there are no significant differences ($p > 0.05$) for the chemical component of the milk.

The dried degreased substance varied between 10.96±0.168% for Ratca and 11.52±0.207% for Turcana. The testing of the this component came with significant statistical differences ($p \leq 0.05$).

The dispersion indicators for the chemical composition of the analyzed milk are between normal limits for the Ratca breed, and the medium percentages of the chemical components are at the superior limit compared to the previous estimations for the Turcana species.

Compared to the chemical composition from the milk coming for the specialized species in milk production (Lacaune, Friza, Sarda, Chios), the sheeps from Ratca and Turcana species register higher values for the percentages of fat, protein and dried substance. Considering that the heritability for the main components of the milk is very high (0.46 for protein and 0.35 for fat), it is recommended, alongside the selection for the total production of milk, to include into the amelioration program of the species also the quality components (fat, protein and dried substance), just to assure a superior conversion indicator of the milk into quality dairy products.

CONCLUSIONS

In this paper we evaluated the potential of the milk coming from the Ratca sheeps and we have also made a comparative study between the potential of the milk of the Ratca and Turcana species keeping them under an extensive production system; there was also made an techincal and economical study of the growth and exploitation of the Ratca species. For the future, I consider to be necessary, more studies to look after more detailed information into the substance of the milk produced by the Ratca sheeps, like mineral components and enzymes, so more traditional and/or functional edibles could be developed and also they can be approved in EU (product of designed origin PDO; product of geographical indication PGI).

ACKNOWLEDGEMENTS

This work was supported by a grant of the Romanian Academy of Agricultural and Forestry Sciences 'Gheorghe Ionescu-Sisesti', project code RASE.

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