

RESEARCH REGARDING THE REPRODUCTIVE ACTIVITY OF ROVASI SHEEP

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Abstract

The efficiency of animal husbandry depends mainly on how the breeding activity is coordinated and applied at the level of each sheep population. For these reasons, the reproductive function must be intensified, but properly thought out and applied, depending on the particularities of each population, as the success of this activity is directly influenced by the value of reproductive traits.

Among the ways and practical solutions that do not involve the allocation of large material and financial resources, which can intensify sheep's reproduction, we list: inducing puberty to use lambs for breeding since early autumn and using the influence of natural factors to create and synchronize heat in sheep adults.

The end of the research highlights the fact that in all batches the index of reared lambs, which represents the proportion of those weaned from the total calved lambs, had values higher than 96%, except for the group of young belonging to newly formed milk lines where the average value determined for this indicator was 95.62%.

Key words: milk sheep, Rovasi, reproduction, ewe

INTRODUCTION

Known more in Romania as Awassi, Rovasi sheep represent a population of dairy sheep, selected and raised in purebred for several generations, in our country. The process of forming this new breed was based on the practice of systematic breeding crosses between the Awassi breeds and the local Țigaie breed - the rusty variety.

In Romania, the Awassi sheep were imported mainly for crossbreeding with local breeds. The first import of Awassi breeding individuals was made, from Israel, in May 1973, at the Research and Development Institute for Sheep and Goat Breeding Palas-Constanța, and it was represented by 10 males and 70 females, aged 7 months. This herd was transferred to the Rușețu Sheep and Goat Breeding Research and Development Station - where it performed for several generations [9].

The effect of the research activities was completed by obtaining two new biological creations. At the research-development unit from Palas-Constanța, by crossing with Merinos de Palas and Friesian, the Palas Milk Breed was formed, approved in 2010, and at the research station from Secuieni-Bacău, by crossing with the rusty variety of Țigaie was obtained a new type of milk called Rovasi, which is currently in the process of being approved.

At the formation of the new milk population from SDCCOC Secuieni-Bacău, through the applied improvement program, the aim was, to sum up, on a new type of genotype, the gene pool responsible for milk production capacity (from Awassi) and also keep from the local breed the genes responsible for organic resistance, adaptation to different technological conditions, resistance to climatic factors and different pathogens etc.

MATERIAL AND METHOD

For the correct analysis of the reproductive function, in the period preceding the breeding, the formed batches

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benefited from optimal feeding and maintenance conditions, and the detection of the females in heat was done with the help of the test rams wearing aprons. Immediately after detection, each female was mounted by the ram distributed through the mating list.

To highlight the specific characteristics of the breeding activity, a group was formed with adult females from the new type of sheep bred for milk and another group also consisting of adult females, but within the rusty variety of the Țigaie breed. During gestation and lactation, both groups benefited from the same experimental treatment. Also, during the suckling period, both batches were maintained together with their own products, when all the specific technical procedures were applied (weighing at birth, marking etc.) and the analysis of the suckling capacity of the females from the constituted batches was performed.

Based on the data obtained from the breeding and calving campaign, an evaluation of the breeding activity was carried out, when also the main specific indicators were determined.

RESULTS AND DISCUSSIONS

Estimating the specific indicators of breeding activity in farm animals is an important activity because it has a direct influence on the characteristics of production but also on the process of improvement and perpetuation.

The breeding season is an important practical action because it has a direct influence on the season in which calving will take place but also on the period in which the sheep will have specific productions [6]. Researches show that the adult sheep from the new type of Rovasi milk show sexual cycles in the same conditions and in the same season with the local Țigaie breed sheep, respectively in autumn.

In the case of the present research, the breeding season was placed in the early autumn months and the preparation of the flocks for a new season was specific to traditional sheep breeding technologies.

Regarding the influence and role of natural factors in triggering ovulation heat in

sheep, it is known that in tropical and subtropical areas, where vegetation is abundant, oestrus (heat) can occur in small ruminants throughout the year. Not the same thing happens in regions with temperate climates, as is the case of our country, where the breeding activity is divided into two seasons depending mainly on the length of daylight. The first season, considered as being the main one, is autumn when the light decreases until it reaches the ratio of 1:1 between light and dark, and the second season is placed in the spring months when the light increases in duration to reach the same report [7].

All breeds reared in Romania are conservative in terms of the breeding season, except for the Merinos de Palas breed. Research conducted in this regard indicates that 28-33% of females belonging to this breed can manifest sexual cycles also in spring [5].

The heat detection was done by the test rams equipped with protective aprons, which were introduced into the herd three times a day. All females that showed signs of heat were mounted with tups respecting the list of breeding management. These lists took into account the biological value and the level of specific productions, and each sheep was bred with a male placed in a higher class.

For the success of the breeding act, each female was mounted twice on the day of detection, at 10-hour intervals. After 15 days from the heat's release, the sheep were monitored to know which suffered returns; the centralized situation of the mounts and calving's is presented in Table 1. Fecundity is an extremely important indicator, being frequently used in estimating breeding activity and expressing the proportion of females that become fertile out of the total number distributed during breeding. It is a precise boundary between fecundity and sterility, which is why the fecundity index (F_m) can also be calculated using the relation $1 - S_m$, where S_m = sterility index.

From the data obtained at the end of the breeding season, it can be seen that the breeding activity was completed with results that can be considered positive. By obtaining a fecundity index with average values higher

than 94% it can be stated that the new sheep population proves good qualities for breeding activity. By comparison with the local Țigaie breed, the average value of the fecundity index in adults was 94.54% and in the young sheep in the first breeding season the average value of this character was 89.41%. On the other hand, the analysis of the indicator represented by females that needed several sexual cycles for the installation of gestation shows that while in adult females from the new type for milk production their proportion was 5.66% while at the Țigaie breed the percent was only 1.2%.

The indicator represented by the females that carried the gestation to the end and produced at least one lamb was 97% in the adult sheep of the new population, and 98.80 within the Țigaie breed. The differences found in the analysis of the respective indicator in young females are on the same coordinates. Prolificacy is an extremely important character that participates both in increasing average production and in

achieving superior economic efficiency for each sheep that is part of the living stock. By analysing this indicator for the two age categories, we aimed to see if there are significant differences between females that are part of different age groups and form the livestock.

In the case of the group consisting of adult sheep belonging to the new type for milk production, the prolificacy had an average value of 108.74%, while in the female youth used for the first time in the breeding process the average value of that character was higher by 2%. This situation is because in the case of young categories during the growth period, optimization of all influencing factors was pursued. As a value, this index is placed between biological limits and very close to the data in the literature for parental breeds.

Compared to the new type of sheep, in the herd of local sheep Țigaie the prolificacy value was higher by about 2.5% in adults and lower by 9.59% in youth.

Table 1 Breeding, calving's and reproduction indices situation

| Specification | Unit | New type of sheep group | | Țigaie sheep breed | |
|-------------------------------|------|-------------------------|------------|--------------------|------------|
| | | Adults (L1) | Youth (L2) | Adults (L3) | Youth (L4) |
| Females assigned to the mount | n | 300 | 110 | 250 | 85 |
| Females mounted | | 300 | 104 | 247 | 76 |
| Females with repeated mounts | | 17 | 21 | 3 | 11 |
| Calved females | | 291 | 104 | 247 | 82 |
| Calved lambs | | 311 | 115 | 275 | 83 |
| Weaned lambs | | 307 | 110 | 271 | 79 |
| Reproduction indices | | | | | |
| Fecundity index (Fm) | % | 95.33 | 94.54 | 94.54 | 89.41 |
| Prolificacy (Pf) | | 108.74 | 110.80 | 111.33 | 101.21 |
| Reared lambs index (Cn) | | 98.71 | 94.78 | 98.54 | 96.34 |

The index of reared lambs was determined based on the total number of weaned lambs from each of them observed. It is a very important synthetic indicator because it shows the survival rate of lambs in the first neonatal period.

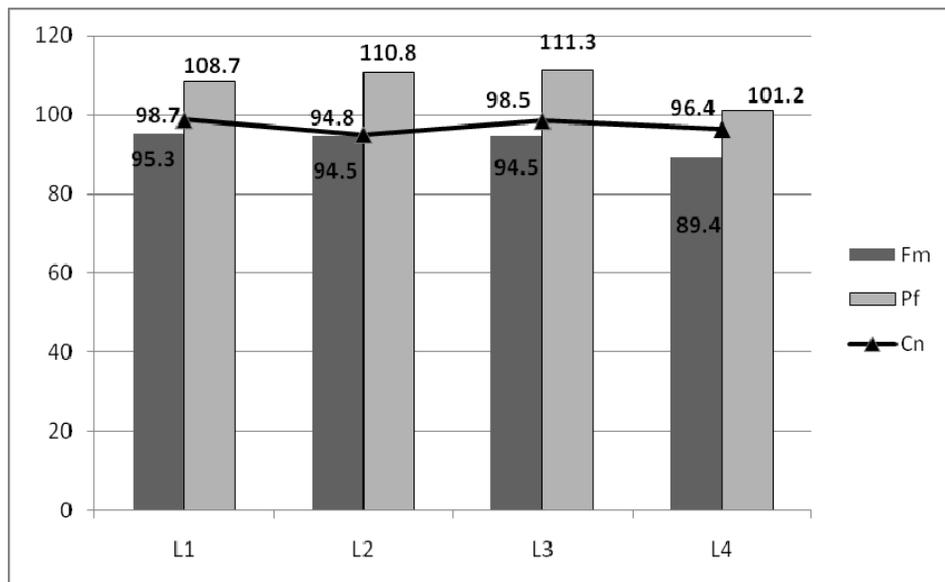


Fig. 1 Dynamics of the main indicators characteristic of the reproduction function (%)

The predominant causes of lamb death in the first days after calving may differ between regions, depending on their exposure to certain risk factors, such as disease or extreme weather [2], although there is a consensus that most losses occur in the first 3 months' postpartum days [3, 1, 8]. In herds that are mainly kept on pasture, about half of all losses are related to birth, including abortions (21%), birth injuries (18%) and dystocia (9%), followed by starvation of lambs due to inadequate milk by sucking (25%), predation (7%) and exposure to cold (5%). [6] The birth weight of the lamb and the quality of maintenance conditions, together with the maternal traits of the female, are the main risk factors for neonatal loss [4, 8].

Also in the reduction of mortality in lambs, the relationship between birth weight and survival is curvilinear, with several deaths in lambs born with weights outside the ideal range of 4.0–6.0 kg [4, 7], although the predominant causes differ between underweight and overweight lambs.

The completion of the research highlights the fact that in all groups the index of raised lambs had values higher than 96%, except for the group consisting of young women

belonging to the newly formed milk line where the average value determined for this indicator was 95.62%.

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CONCLUSIONS

1. By intervening through various cross-breeding schemes in the process of population reproduction, it is possible to obtain either a change of future generations or a change, in the desired sense, of their genetic structure.

2. From the average values calculated for the analysis performed to characterize the reproductive function, it can be observed that during the reproduction season no special aspects were reported and the results obtained are generally positive.

3. By obtaining a fertility index with values higher than 94%, the respective population proves a good quality for the breeding activity, and the average values are similar to those determined for very well genetically consolidated breeds.

4. The prolificacy of adult sheep had a determined average value of 108.74%, while in youth the average of that character was higher by 2%.

5. The index of reared lambs had values higher than 95% in both groups of adult sheep and values around the average of 95% in the categories of females in the first breeding season.

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