

CURRENT TECHNICAL AND PRACTICAL ASPECTS IN IMPROVEMENT OF THE BREEDS OF SHEEP IN ROMANIA

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Abstract

Performance control of production on sheep is aiming to ease the identification the most productive animals, which are going to participate to create the frontline nucleus of each race under the improvement process. Through the activity of performance control of production and reproduction is aiming the modifying the genetic structure of active population, with direct impact on raising the way of expressing the characters that are under the improving process.

Based on current data is found that the structure of herd assigned in Official Control of Production is dominated by the local races respectively: Turcana, Tigaie, Karakul de Botosani, Black head sheep of Teleorman and Merinos de Palas. The race with the highest share in national livestock that is under the performance test is Turcana which is having 70,09% share. The races breed for wool and meat, respectively Merinos de Palas and Merinos from Transylvania are having a share of 1.65% and 0.25%.

Introduction of performance control of production on sheep and applying some sustainable improvements programs will ease the growth of individual production, with the economic consequences in national and international area.

Key words: official control, sheep races, performances, improvement

INTRODUCTION

Animal improvement is one of the most important side of zootechnics and it means the assisted process of modifying the genetic fund of populations of domestic animals in the useful direction of humans.

The increasing need of animal protein is imposing raising the production obtained from animals from zootechnics area. Until one point, this growth of animal production could be based on numeric growth of these farming livestock. But the numeric growth of animal production is limited by the land surfaces which are supplying the feed source for them. From here it starts the necessity of improving the population of animals in such way that from the same animal, with the same amount of feed intake and with the same expenses to obtain bigger productions which means to maximize the genetic advance per time unit and per expenses unit.

RESULTS

Organization of the business for improvement at the ovine species in Romania

The activity of improvement at ovine species is based on the complex assembly of works, carried out in the view of improving the performances from this species and is based on:

-doing the official control of performances at the herds included in a program for the improvement of the breed;

-selection and promoting to reproduction of the animals that are conform with the scope and objectives of the improvement program;

-testing parentage of individuals selected for reproduction in the view of estimating the value of improvement of these individuals.

-intensively usage to reproduction of the individuals tested, of which value of improvement was confirmed, for diffusing as fast as possible the genetic progress.

Genomics selection represents an major aspect of interest at this species too, and could be used along with the classic testing methods, in selecting the best breeders for increasing the precision of the improvement value and shortening the time between generations.

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- ✓ *Major participants in the work on the improvement of the breeds of sheep and goats from Romania:*
 - ✓ **Keepers of animals** - with flocks included in improvement programs of races and implicit in official control of performances.
 - ✓ **Associations which carry out the works of the official control of performance (COP):** control of wool production, milk, meat, little sheep-clothing and who hold and transmit to the accredited association for leading the herd-book a data base with the results obtained in connection with the carrying out of the COP.
 - ✓ **Associations which leads studbooks of race, responsible for carrying out the objectives of the program for the improvement of the breed.**
 - ✓ **Competent Authority (A.N.Z.)-** approving the programs for the improvement of the breeds, coordinates, monitors and controls the whole activity improvement at national level.
- ✓ *Works and actions, phased out, in order to improve the breeds of animals:*
 - a) the drawing up of a program for the improvement of the race by association which will lead the herd-book of the breed; establish the population of work, the objective of the process of improving and the methods of selection.
 - b) the accreditation - by the competent authority - associations who wish to start up and to lead a herd of pure-bred and which by default shall be responsible for the conduct and the achievement of the objectives of the program to be improved.
 - c) the accreditation - by the competent authority - associations for the carrying out

of these controls the performance of production in sheep and goat animals, with a view to collect information about production and breeding for each individual included in the work of the selection.

The official control of the production to the animals included in the program for improvement. The techniques of making the official control and testing of the performance of the own and/or of the descendants and the collaterals are transposed into the domestic legislation in accordance with the ICAR rules. This is a work of maximum importance, to the fairness of this depends the correctness of the decision to hold or elimination to the breeding of an individual. The accuracy of primary data constitutes an essential condition for the transition to the processing and analysis.

Otherwise, even if we apply the most sophisticated statistical methods, the information we will get will be false and the decision on which we take on the basis of false information is always against our own interests.

The selection and promotion at breeding of valuable individuals and the elimination from the breeding of those who do not correspond to the objectives of the improvement program. It is to be assumed that a character phenotypically expressed by an individual is the result of a particular structure of the genome and which could occur in certain conditions of the environment. Therefore after monitoring the performance of the production we can infer from this that the animal is bearer of a valuable genetic luggage and which is possible to be passed to their descendants.

The elimination of individuals is equivalent to the elimination of genes of the population and has the immediate effect the change in frequency of genes and genotypes of the population concerned. In this way the genetic structure of the population subsidiaries will be different from that of the parent population, increasing the share of genotypes and fenotipurilor favorable. The subject of the improvement is the population not the individual.

The inclusion of individuals in the herd-book of the breed in compliance with the criteria for registration as they are laid down in the European and national legislation. The minimum requirements of performance, for the entry of an individual in the herd-book, shall be determined in accordance with the internal rules/ regulations on the organization and functioning of the herd-books, according to the characteristics of the breeds and the objectives of the program of improvement.

The certification of the origin of the animals and the value of improvement to breeding animals.

In the certificate of origin shall be referred to the performance of the individual and of his ancestors on the two generations. The information which we get from pedigrees, is that the performance achieved by the two parents and grandparents, can show the qualities which would have the son (daughter), or nephew (niece). In the prediction of the overall value of improvement shall be taken into account and the information about the performance and ascendants that:

- Between the individual analyzed and one of the parents, the degree of genetic similarity is 0.50;

- Between the individual analyzed and his grandmother there is a degree of genetic similarity of 0.25;

- And between the individual analyzed and its great-grandparents, correlation is 0.125.

Aim of improvement of sheep is to obtain such individuals in conjunction with the preservation of health of flocks, of the characters of the breed and the variability of the genetic modification.

Getting the breeding animals is an arduous work requiring attention and accuracy in the records at the farm, additional volume of work and additional expenses.

But it is an investment that would give results in future generations. Sales of livestock entered in the herd-book together with productive performance achieved, can greatly increase the income of a sheep farm, in the perspective of obtaining produced bearers of a genetic progress. By purchasing animals with estimated genetic value, shall be purchased genetic donors which will

bring the added value to future generations of sheep from the farm.

The appreciation of the visual inspection of animals are not saying too much about the productivity of individuals and it is therefore necessary that an breeding animal for sale to be accompanied by a certificate of origin in which shall be entered the performance, recorded in connection with the carrying out of the official control of production.

Slowly, in farms where are such breeders, will see the benefits on the products obtained and in the end on the profits of the farmer.

Market value of tested breeder will increase significantly as compared to that of an animal which was not under the official control and on which there was no productive appreciation, all the more so if about his ancestry is known absolutely nothing.

The animals without performance measured can not be bought in accordance with the objectives and the interests of the farmer to increase productivity and by default the profit of the farm.

Official Control of Production Performances (COP)

Control of production performances is having the aim to determine exactly the production of controlled animals, in the view of selecting the most valuable individuals and use them as breeding animals to diffuse the genetic progress. Neither genetic progress nor average performance of an selected population is evolving smoothly from generation to generation or from year to year, but is fluctuating.

These fluctuations are generated by the following aspects:

- Overlapping of an inevitable fluctuation of the environment over a genetic progress relatively small (environment conceal the genetic progress and makes it difficult if not impossible to specify, how much of the progress of the final organisms **is due to the selection and how much is due to the improved conditions of operation**).
- A specific variation on the sample (number of measured individuals).

- The control procedure** and the processing of the data of control which **directly affects the accuracy of the selection**, therefore **the best method** for the control is that which ensure the **highest precision of the selection**, without increasing the interval between generations, or increasing it as little as possible, here may intervene successfully application of the genomic selection.

 - **Until 2006** COP has been done by **A.N.A.R.Z.**;
 - **2006** - COP service was externalized and is made by farmer's associations accredited in this scope- this service is supported by public funds;
 - **2010** - was suspended de financial support, and this led to sharp decreasing of the number of sheep assigned to COP;
 - **2011**- relaunching COP to sheep as a consequence of issuing HG 207/2011 for the approval of the detailed rules on granting the State aid for the improvement of breeds of animals.
 - **2017**- associations accredited for carrying aut COP to sheep: **52**

In the analysis of the graph we notice that since 2008, as a result of the cessation of any form of support for the breeding animals, livestock entered in the work of improvement are in steep decline, but once with the imposition lay out in state aid for the improvement of the animals approved by the HG 207/2011 herds entered in the COP start to grow, the increase is significant one. The issuing of OM (Minister Order) 619/2014 through which SCZ (coupled support in animal husbandry) is granted to animals entered in the RG leads to an explosive increase number of flocks implied in works of improvement .

Through the scheme „Minimis aid for purchasing by the farmers the rams/goats for breeding from specialized races” approved in year 2014 and 2016 were bought 17576 rams from which, 4286 in 2014 and 13290 in 2016. Big number of breeding males bought in 2016 is showing the interest of farmers for valuable animals and their wish to improve their herds.

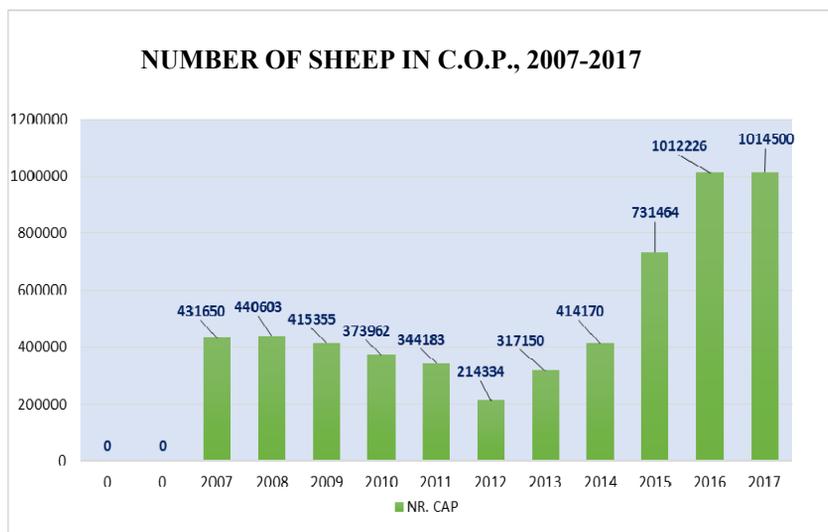


Diagram 1 Evolution of the number of sheep included in performance control

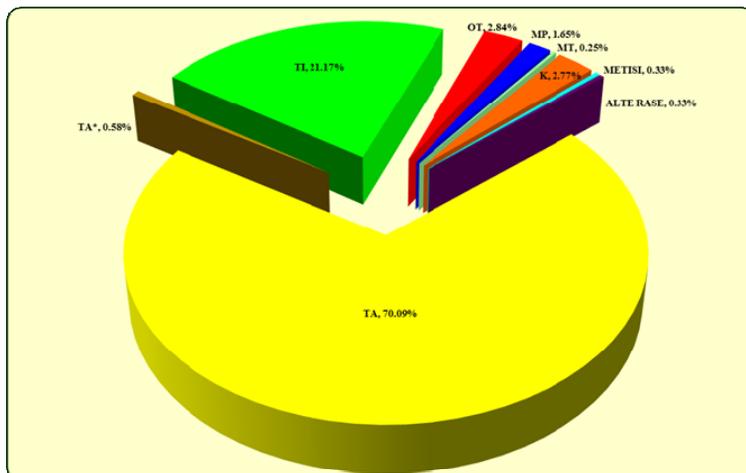


Diagram 2 Proportion of races in the total number that is in performance control

By analysing the structure of the race of livestock entered in the COP we observe increasing interest of farmers for indigenous breeds, taking into account that about 99 % of ovine entered in the COP belongs to the indigenous breeds (Țurcana, Țigaia, Karakul de Botoșani, Oaia cap negru de Teleorman, Merinos de Palas).

The race with highest share in monitoring the performance (70.09%) is bred Turcana. The herds of this breed have become heterogenic, causing cores of good production of milk, cores with a high prolific rate or with a current good daily average. It is well adapted to the conditions of operation in the mountains, but occupy important areas and in the hilly areas and the plains. Has a resistance to harsh weather (thick long wool that makes it easy to leakage of water), cold, long roads (hard hoofs) pneumonic diseases. During the period of fall builds up deposits of fat (5-10 kg), which they use when housed, as reserve of energy.

Due to the special skills of resistance and production is the breed with the highest percentage of importance in most counties of the country.

CONCLUSIONS

1. Since the accession of Romania to the European Union have occurred major changes in the activity of the improvement of farm animals, changes due to the adaptation of national legislation to those of the European Union, aspect that has attracted a certain production of livestock included in the control of production.

2. Since 2008, as a result of the ceasing of any form of support for the animals for breeding, livestock entered in the work of improvement is reduced to below 300 000 heads, but once with the imposition layout of state aid for the improvement of animals in each year is found to increase the number of sheep in this category.

3. Comparing with year 2007 the number of animals included in COP at ovine species has increased in 2017 with over 200%, exceeding 1 million heads.

4. At the level of 2017 from total number included in COP, Turcana and Tigaie breed are having together 91.76%.

REFERENCES

- ***HG 207/2011
- ***<http://www.anarz.eu>
- ***<http://www.anarz.eu/AnarzAdministratorSite/MSContent/LEGISLATIE%20NATIONALA/ovine%20si%20caprine/Ordinul%20nr.%2022%20din%202006.pdf>