

Cluj Merino breeds' potential for meat production

Stelian Dărăban, Cristian Coroian, Bogdan Georgescu

University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca,
Faculty of Animal Husbandry and Biotechnology, Cluj-Napoca, Romania.
Corresponding author: S. Dărăban, e-mail: ovineusamv@yahoo.com

Abstract. Merino of Cluj breed, formed in the period of time 1957 – 1988 into Agronomic Institute Doctor Petru Groza with the help of a staff led by distinct professor dr. eng. Augustin Pop, puts together in its own genetic fond, genes of two Romanian breeds, Transylvanian Merino breed on paternal line and Turcana breed white variety, Sibiu county ecotype on maternal line, being rolled as a breed belonging to mixed morpho-productive type fine wool – meat – milk. After year 1989, breed knows, keeping step with Romanian ovine culture, an increased regress of stocks, present days being in genetic preservation, but also a line up to European production orientations so that we are speaking now about a mixed breed, and production proportion being of 61.70 % meat, 30.10 % milk and 8.20 % wool and leathers, from total value of productions obtained.

Key words: genetic preservation, Merino of Cluj breed, genetic fond, genes.

Rezumat. Rasa Merinos de Cluj, formată în perioada 1957 – 1988 în cadrul Institutului Agronomic Doctor Petru Groza de către un colectiv condus de distinsul prof. dr. ing. Augustin Pop, immănunchează în fondul său genetic, genele a două rase românești, rasa Merinos transilvănean pe linie paternă și rasa Țurcană varietatea albă, ecotip sibian pe linie maternă, fiind catalogată ca și o rasă aparținând tipului morfoproductiv mixt lână fină-carne-lapte. După anul 1989, rasa cunoaște, în pas cu ovicultura românească, un regres accentuat al efectivelor, la ora actuală fiind în conservare genetică, dar și o aliniere la orientările europene de producție astfel în prezent fiind o rasă mixtă, dar ponderea producțiilor fiind de 61,70 % carne, 30,10 % lapte și 8,20 % lână și piei, din totalul valorii producțiilor obținute.

Cuvinte cheie: conservarea genofondului ovin, rasa Merinos de Cluj, genofond, gene.

Introduction. Romania, a country with tradition and experience in ovine breeding, has known during 1970 – 1989, a blossoming period of this agriculture branch, so that, in 1989, 18 millions ovine heads were recorded, with a good breed structure, breeds of fine and semi fine wool representing above 62 % from the total ovine effective, in the agro-pedo-climatic area suitable for these breeds. Today, when the ovine effective in Romania is hardly touching 8 million heads, we assist to an undesirable phenomenon that means "re-turcanisation"; this breed owns now days above 65 % of the total ovine effective, about 73 % of ovine stock being in official control, and 29 % of stock being exploited in elite farms (see Figure 1). This breed structure, in which Turcana owns above 65 % of the exploited stock, sends back, from this point of view, to the level of 18th century, when breeding of ovine characterized by rustic traits, mixed productions and common and braid wool prevailed (Pop et al 1983; Pop & Mireșan 1991; Taftă et al 1997).

Romania breed structure, together with production orientation of ovine species towards a variety and quality of European level, shows an evident imbalance when looking to the main products levels (Table 1), meat and milk, having in view that breeds with some specialization degree and with a pronounced orientation toward one production direction, as Merino ovine group, have lost the ground favoring Turcana breed, with mixed aptitudes but less competitive, due either to some biological peculiarities, or to exploitation and breeding technologies.

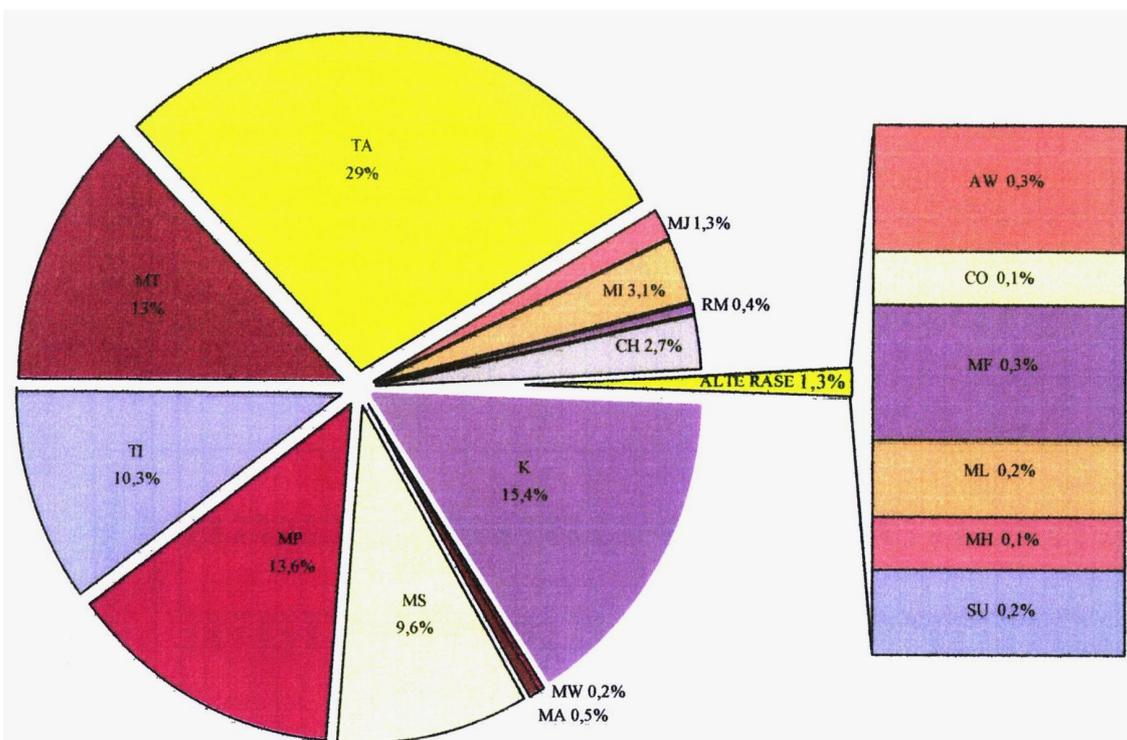
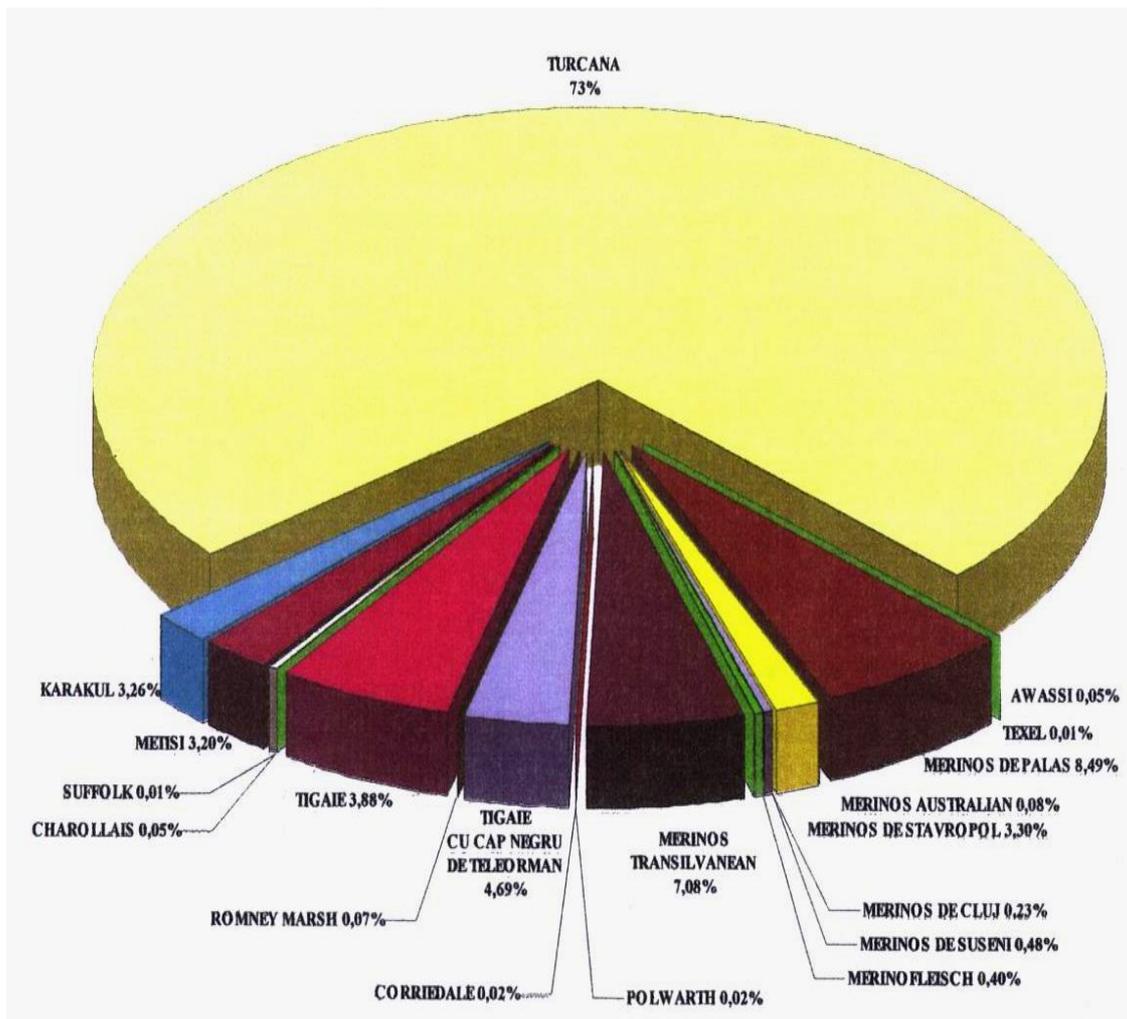


Figure 1. Ovine stock structure at 01.01.2008. Left – breeds (%) in total stock being in production official control (POC); right – breeds (%) in the stock exploited in elite farms; MJ - Merino of Cluj.

Table 1

Evolution of income products from ovine exploitation in EEC countries (%)
(after Nabradý 1999, cited by Mierliță 2001)

Year	Production (%)		
	wool	meat	milk
1965	70.00	20.00	10.00
1975	39.00	60.00	1.00
1985	25.00	72.00	3.00
1995	7.00	90.00	3.00

Studies done in Romania also mentioned that productions of sheep meat and milk are far superior to those of wool and leather (Table 2). This fact imposes a new orientation in breed structure, to insure a competitive level, compatible with the one of countries with tradition and high technological level.

Table 2

Proportion of products obtained in some inland ovine breeds
(after ICDOC Palas-Constanța 2000; for Merino of Cluj, authors data, 2006)

Breed	Production (%)		
	Wool and leather	Meat	Milk
Merino of Palas	9.80	61.50	28.70
Transylvanian Merino	9.70	64.50	25.80
Merino of Cluj	8.20	61.70	30.10
Jigaie	5.50	43.60	50.90
Turcană	3.50	37.20	59.30

Based on the above, we believe that it is mandatory in the first stage, to reconsider the breed structure at national level and to establish the ovine zone, respecting the biological peculiarities of breeds, correlated to the agro-pedo-climatic conditions of breeding zones. Turcana breed area should be restricted to mountain and high hills, while plateau areas, lower hills and plain areas should be ascribed to fine and semi-fine wool breeds. The latter ones also need to undergo amelioration toward meat or milk production, in order to increase their economic rentability. Judicious capitalizing of existent breed structure, first of all of native breeds, insures a durable development of oviculture, also preserving biodiversity, by exploiting all ecotypes and varieties of native breeds.

Among Merino breeds exploited in Romania, Merino of Cluj is the one adapted to agro-pedo-climatic conditions of Transylvania, especially to hill zones with a more accentuated raining level, unsuitable for other breeds with fine wool.

Investigations done by the staff of Ovine and goats breeding technology class in Agronomic Institute "Doctor Petru Groza", led by distinct professor dr. eng. Augustin Pop, on native ovine gene pool in Transylvania, have resulted in forming a new sheep breed. Transylvanian Merino individuals have been selected as paternal genitors Turcana, Sibiu ecotype as maternal genitors. Selection of these genitors permitted grafting on the same individual of the valuable traits of Transylvanian Merino wool and the special resistance to environmental conditions of Turcana breed, which is in fact the oldest native breed.

In the period of the new breed forming, of nearly 30 years, till the moment of its certification by OSIM, in 1988, the breed successively carried different names: "M type", "sheep of Cluj", "Manastur sheep", and after approval, Merino of Cluj.

Merino of Cluj had mixed characteristics: wool – meat – milk, and the breed presents the following morpho-productive traits, shown in Table 3.

Table 3

Synthetic presentation of main morpho-productive indices in
Merino of Cluj breed

<i>Index</i>	<i>Sheeps</i>	<i>Rams</i>
Body weight – kg -	48 – 57	75 – 85
Wool quantity – kg -	3.5 – 4.5	6.5 – 7.0
Wool fineness - μm -	22 – 24	
Tress length – cm -	8.0 – 8.3	
Wave number on cm	7.0 – 9	
Milk quantity – liters -	85-95 (100.68 l average years 2004 – 2006)	
Prolificity - %	112 – 115	
Natality - %	94 – 96	
Weaned lamb percent - %	95 – 98	
Production character	mixed: meat-milk-fine wool	
Resistance and adaptability	good	

After 1990, when wool production began to lose its economic interest, concerns of selection in this breed were directed towards meat production, without neglecting that of milk and in conditions of maintaining the wool production to the breed's standard.

To conduct the breed's potential towards meat production, experiments of fattening were done in different systems; a part of results are presented in Table 4. From these data it can be seen that in the case of intensive fattening of 100 days, on ground on permanent litter (Mireşan 1996), and in classic fattening, or thronson type (Coroian 2006; Coroian et al 2009), total accumulations of body weight gave averages of 24.82 ± 0.40 kg, and 25.31 ± 0.68 kg, respectively. Daily mean accumulation of body weight had values of above 200 grams, being of 248.23 ± 4.59 g in the case of lot fattened on ground on permanent litter and of 253.13 ± 22.20 g in the case of lot fattened on thronson. These values are comparable to those recorded in other breeds of the same group, but inferior to specialized breeds (Laville et al 2002).

When fattening was done exclusively on a pasture with medium productivity and quality, without adding supplementary feed, during 150 days, the total accumulation of body weight was of 16.06 ± 0.30 kg, with a daily average of 107.06 ± 2.02 g (Table 4). These values are clearly superior to those recorded in Turcana and Tigaia breeds, two rustic breeds which require a better pasture capitalizing capacity, in the same conditions, both breeds realized daily means of above 90 grams.

Table 4

Total accumulation and daily mean of body weight recorded in ovine young Merino of Cluj stock, intensively on pasture fattened

<i>Author/year</i>	<i>Body weight (kg)</i>		<i>Accumulation</i>		<i>Specific consumption</i>	
	Start fattening	Final fattening	Total (kg)	Daily mean (g)	Net energy rumin, (kcal)	Dig. Protein (g)
Mireşan, 1996, SDE	15.22 ± 0.18	40.04 ± 0.51	24.82 ± 0.40	248.23 ± 4.59	7782.50	850.50
Mănăştur Dărăban, 2004, SCDP	21.69 ± 0.39	37.75 ± 0.30	16.06 ± 0.30	107.06 ± 2.02	13088.75	970.70
Jucu Coroian, 2006, SC	15.47 ± 0.46	40.78 ± 0.75	25.31 ± 0.68	253.13 ± 22.20	7924.00	822.27
Seradria Răscruçi						

Besides good indices of fattening, animals of this breed also realized high abattoir indices, expressed by carcass weight in cold, killing out percentage and proportion of cutlet and leg of mutton in carcass (Table 5).

The recorded abattoir indices, allows the including of Merino of Cluj breed in the 1st class of quality (normative applied in our country for ovine young stock category), and the including in ovine young stock of fattening class after European norms (Fahmy et al 1992). According to the carcass mass, this breed belongs to the 16.00 – 19.00 kg group.

Table 5

Main abattoir indices recorded in ovine young stock Merino of Cluj breed,
intensively and on pasture fattened

Breed	Index	<i>X ± s_x</i> after:		
		Mireșan* 1996	Coroian 2004	Dărăban** 2004
Merino of Cluj	Carcass mass (kg)	19.90 ± 0.67	18.76 ± 0.37	18.14 ± 0.14
	Killing out percentage (%)	48.75 ± 0.39	46.35 ± 0.29	48.07 ± 0.06
	Cutlets and leg of mutton in carcass (%)	48.00 ± 0.51	49.69 ± 0.26	46.50 ± 0.01

(* - intensive fattening, of 100 days

(** - fattening on pasture, 150 days

Based on the obtained experimental data, we can affirm that Merino of Cluj breed represents an important source of for meat production, the expression of the genes of interest for this trait could be increased, either by assuring an optimal breeding technology, or by cross-breeding with races specialised for meat production.

References

- Coroian C., 2006 [Contributions to the study of intensive fattening capacity in young ovine stock of different breeds]. Doctoral Thesis, USAMV Cluj-Napoca. [In Romanian]
- Coroian C., Dărăban S., Pop A., Cătoi C., Odagiu A., Pece A., 2009 The study of intensive fattening of youth sheep from different breeds in Romania. *ABAH Bioflux* **1**(1):49-56.
- Dărăban S., 2004 [Contributions to the study of intensive fattening capacity on pasture feeding in young ovine stock of different breeds]. Doctoral Thesis, USAMV Cluj-Napoca. [In Romanian]
- Fahmy M. H., Boucher J. M., Poste L. M., Gregoire R., et al, 1992 Feed efficiency, carcass characteristics, and sensory quality of lambs, with or without prolific ancestry, fed diets with different protein supplements. *J Anim Sci* **70**:1365-1374.
- Laville E., Bouix J., Sayd T., Eychenne F., Marcq F., Leroy P. L., Elsen J. M., Bibe B., 2002 La conformation bouchere des agneaux. Etude d'après la variabilité génétique entre races. *INRA, Productions animales* **15**(1):53-66.
- Mierliță D., 2001 [Nutrition and Alimentation of Sheep for Fattening]. AcademicPres, Cluj-Napoca. [In Romanian]
- Mireșan V., 1996 [The influence of forage composition on intensive fattening performances in young ovine stock of Tigaia, Merinos of Cluj and Corriedale breeds]. Doctoral Thesis, USAMV Cluj-Napoca. [In Romanian]
- Pop A., Taftă V., Petrescu R., 1983 [Breeding technology in sheep and goat]. Editura Ceres, Bucharest. [In Romanian]
- Pop A., Mireșan E., 1991 [Practice guide for lamb breeding and fattening]. Editura Ceres, Bucharest. [In Romanian]
- Taftă V., Vintilă V., Zamfirescu S., 1997 [Production, genetic improvement and reproduction in sheep]. Editura Ceres, Bucharest. [In Romanian]

Received: 12 August 2009. Accepted: 30 October 2009. Published online: 30 October 2009.

Authors:

Stelian Dărăban, University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca, Faculty of Zootechny and Biotechnology, 3-5 Mănăştur Street, 400372, Cluj-Napoca, Romania. E-mail: ovineusamv@yahoo.com

Cristian Coroian, University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca, Faculty of Zootechny and Biotechnology, 3-5 Mănăştur Street, 400372, Cluj-Napoca, Romania. E-mail: cristian_coroian@yahoo.com

Bogdan Georgescu, University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca, Faculty of Zootechny and Biotechnology, 3-5 Mănăştur Street, 400372, Cluj-Napoca, Romania.

How to cite this article:

Dărăban S., Coroian C., Georgescu B., 2009 Cluj Merino breeds' potential for meat production. ABAH Bioflux 1(1):57-62.

Printed version: ISSN 2066-7612

Online version: ISSN ****-**** available at: <http://www.abah.bioflux.com.ro/docs/2009.1.57-62.pdf>