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INFLUENCE EXERTED BY GRAZING OF GRAMINACEOUS AND PERENNIAL LEGUME ASSOCIATION ON MEAT QUALITY AND SEROLOGICAL INDICES IN YOUNG SHEEP

INFLUENŢA PĂŞUNATULUI UNOR AMESTECURI DE GRAMINEE ŞI LEGUMINOASE PERENE ASUPRA CALITĂŢII CĂRNII ŞI A UNOR INDICI SEROLOGICI LA TINERETUL OVIN

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Pasture associations, consisted of graminaceous and perennial legume species, represent a balanced forage for young sheep, because they generate a high-quality meat and an optimal level of the serological indices. In this viewpoint, legume species contribute to the achievement of superior quality indices of the animal-based products.
Keywords: temporary pasture, young sheep, quality, serological indices

Introduction

In sheep breeding technology, the nutrition is provided, in a proportion of over 80%, by forage through grazing on pastures. That is why the technological inputs applied on these lands influence plant growth and development, and also animal health and productivity. The researches performed in this direction referred more to the effect exerted by fertilization or amendment on animal-based products quantity and quality, respectively on some physiological indices of the animal body.

This work presents the influence exerted by the floristic structure of some graminaceous and perennial legume associations on meat quality and on some serological indices in young sheep, under conditions of grazing.

Materials and Methods

The researches were performed during 2006-2008, in the Laboratory for forage production, Faculty of Animal Sciences and Biotechnologies.
The experimental device was consisted of 4 variants of graminaceous and legume associations:

V_1 = *Lolium perenne 50 % + Festuca pratensis 50 %*
V_2 = *Lolium perenne 50 % + Trifolium repens 50 %*
V_3 = *Lolium perenne 50 % + Lotus corniculatus 50 %*
V_4 = *Lolium perenne 30 % + Festuca pratensis 30 % + Trifolium repens 20 % + Lotus corniculatus 20 %*

The utilization of these associations was represented by grazing, with young sheep belonging to Ţurcana breed, during three grazing cycles per year.

At the end of the grazing period, we killed 3 animals from each variant and took organ samples for quality and serological analyses.

Results and Discussion

The big water quantity from various anatomic parts of the animal body (over 76%) is due to the exclusive feeding on herbage taken from the 4 associations. So, in the case of the complex association consisted of *Lolium perenne 30% + Festuca pratensis 30% + Trifolium repens 20% + Lotus corniculatus 20%* , we observed a bigger water amount, especially in shoulder and blade bone.

Also in the complex association mentioned above, we remarked the biggest protein content (21.37% in shoulder, 21.00 % in blade bone and 21.86% in cutlet). This increase is generated by the perennial legume species (*Trifolium repens* and *Lotus corniculatus*) from the floristic structure of the complex association, compared to the variant consisted only of graminaceous species where the protein content was below 21% (Table 1).

In all variants including legume species, fat content recorded a decrease, compared to the variant consisted only of graminaceous species.
The level of mineral salts ranges a little from one variant to another, the biggest differences being observed in blade bone, and this level is bigger in the associated variants.

The water retaining capacity had a slight increasing tendency in the complex association consisted of the 4 graminaceous and legume species studied.
On the whole, permanent breeding of young sheep with the forage taken through grazing from the 4 types of graminaceous and perennial legume associations did not lead to significant changes of the serological indices, compared to the normal levels (Table 2).

Among the parameters studied, we observed an overtaking of the normal values in the case of total protein content and mean erythrocitary volume (VEM).
Also, the calcium content in blood is bigger in the associations including legume species, compared to the variant consisted only of graminaceous species.

Table 1

Quality analyses of lamb, performed at the end of grazing period, depending on the type of graminaceous and perennial legume association

Variant	Anatomic region	Water %	Protein	Fats	Mineral salts %	pH	Water retaining capacity (WRC) %
V_1- Lolium perenne 50% + Festuca pratensis 50%	Shoulder	77,23	20,79	1,32	0,66	6,570	34,86
	Blade bone	77,36	20,81	1,34	0,49	6,580	36,44
	Cutlet	75,20	20,39	0,72	0,69	6,495	45,17
V_2- Lolium perenne 50% + Trifolium repens 50%	Shoulder	77,45	20,86	1,01	0,68	6,310	30,66
	Blade bone	77,26	20,58	1,59	0,57	6,400	30,49
	Cutlet	77,45	22,51	0,43	0,61	6,390	42,37
V_3- Lolium perenne 50% + Lotus corniculatus 50%	Shoulder	77,33	21,09	0,89	0,69	6,270	35,08
	Blade bone	76,16	20,86	2,40	0,58	6,480	35,57
	Cutlet	75,92	22,62	0,84	0,62	6,630	45,80
V_4- Lolium perenne 30% + Festuca pratensis 30% +Trifolium repens 20% + Lotus corniculatus 20%	Shoulder	77,72	21,37	0,35	0,56	6,495	33,95
	Blade bone	77,71	21,00	0,69	0,60	6,575	36,85
	Cutlet	76,40	21,86	0,16	0,59	6,635	49,10
Normal limits	X	72	21	6,1	0,9	-	-

Conclusions

The researches performed proved that temporary pastures, consisted of graminaceous and perennial legume species, represent a balanced forage for sheep, because they provide a balanced level of meat quality and serological indices, in optimal limits.

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Table 2

Serological analyses in young sheep, performed at the end of grazing period, depending on the type of graminaceous and perennial legume association

Variant/ specification	Ca mg/dl	P mg/dl	Mg mg/dl	Total protein	Albumin g/dl	GPT*) U/L	ALP*) U/L	Hemoglo-Bin g/dl	Hemato-Crite %	No. of erythrocytes mil/mm^3	VEM*) fl	CHEM*) g/dl
V_1- Lolium perenne 50% + Festuca pratensis 50%	10,1	5,6	2,8	7,3	3,0	10	350	12,6	36,17	13,51	22,77	34,83
V_2- Lolium perenne 50% + Trifolium repens 50%	9,8	4,0	2,7	7,1	2,8	12	289	12,1	35,04	14,85	23,59	34,53
V_3- Lolium perenne 50% + Lotus corniculatus 50%	11,2	5,5	3,1	7,0	2,6	16	354	11,7	31,11	13,70	22,70	35,88
V_4- Lolium perenne 30% + Festuca pratensis 30% +Trifolium repens 20% + Lotus corniculatus 20%	11,6	5,4	2,8	7,4	3,0	13	282	12,1	32,60	10,89	29,93	37,11
Valori serologice în limite normale	10,5±1	6,7±1	2,5±0,5	5,8±0,8	2±0,4	14-44	68-387	12±2	36±4	12±4	36±6	32±3

VEM – mean erythrocitary volume

CHEM – concentration in mean erythrocitary hemoglobin

ALT/GPT- alaninaminotransferase

ALP – alkaline phosphatase