AKTET **ISSN 2073-2244**
Journal of Institute Alb-Shkenca **www.alb-shkenca.org**
Reviste Shkencore e Institutit Alb-Shkenca

CROSSBREEDING EFFECT OF LOCAL BREEDS WITH AWASSI SHEEP BREED IN ALBANIA

XHEMO FEHMI [1], HAJNO LUAN [2]
[1]Department of Biochimestry-Agronutrition, "Fan S. Noli" University, Korça, Albania,
[2]Agriculture Technology Transfer Centre, Fushe-Kruja , Albania,
Fehmi Xhemo, Shëtitorja "Rilindasit" Korçë, SHQIPËRI
email: fehmixhemo@yahoo.com

AKTET VI, 1: 6 - 10, 2013

PËRMBLEDHJE
U krye studimi i treguesve të prodhimtarisë (prodhimi i qumështit, mishit dhe leshit), ato të riprodhimit (pjellshmëria, pjelloria ose qengja të lindur gjallë), etj., qëndrueshmëria ndaj sëmundjeve, aftësitë aklimatizuese së racës së pastër Awassi dhe pasardhësve së saj të breznisë së parë, (F1), të dytë (F2) dhe të tretë (F3) me racat dhe tipet e dhenve të vendit. Ato tregojnë se dhentë e racës së pastër Awassi dhe kryqëzimet e saj me racat dhe tipet e vendit kanë pasqyruar sjellje normale në kushtet klimatike dhe sistemet e mbarështimit të dhenve dhe janë më të larta se ato të racave dhe tipeve të vendit. Rezultatet e fituara në zonat fushore janë më të lartë, ndërsa të njëjtit tregues për të zonave kodrinore dhe malore janë më të lartë për gjeneratat e para dhe me avancimin e futjes të gjakut pas brezit të dytë vërehet rënie e këtyre treguesve dhe dobësi konstitucionale.

Fjalët çelës: raca, kryqezim, tipare, riprodhim, aklimatizim

ABSTRACT
There were carried out studies the indicators of productivity (milk, meat and wool production), those of reproduction (infertility, birth rate, prolificacy or lamb crop), etc., sustainability to diseases, acclimatization skills of purebred Awassi and its crossed progenies of first (F1), second (F2) and third (F3) generations with local sheep breeds. It is showed that sheep purebred Awassi and its crossbred with local breeds have reflected normal behavior into climatic conditions and sheep breeding systems applied in Albania and indicators of productivity (milk production, meat production), indicators of fertility (infertility, birth rate, prolificacy or lamb crop) are higher than those of local breeds. The obtained results in the lowlands are increased, while the crossed progenies of hilly and mountainous areas are higher for the first generations and the advancement of the blood introduction after the second generation observed decline of these indicators and constitutional weakness.

Key words: breed, crossbreeding, character, reproduction, acclimatization.

INTRODUCTION

Small ruminants have an important place in livestock products, producing about 20% to 30% milk and meat in Albania. Large spaces of pastures are favorable to the sheep breeding.

In these conditions, work to improve the genetic capacity of small ruminants, represents the main direction of work, to increase livestock production and incomes of the farmers.

Sheep and their milk are especially important because the international market needs are constantly increasing and therefore there is no quota for those products, except those of lambs. This is why the northern states are slowly changing production systems and their direction in terms of milk production. In these conditions when the demand for milk and meat are required to support this trend by changing the direction of sheep breeding direction towards the breeds

with milk and meat production introducing specialized breeds for milk and meat production.
One of these breeds with good indicators of milk production and fertility is Awassi breed that is currently in the Department of Livestock to ATTC Korça, Albania and in
some districts of the country. The Local Awassi, a triple-purpose breed for meat, milk, and carpet-wool production, is a low-prolific, hardy breed that is well adapted to the unfavorable conditions of the Middle East, where it is managed under traditionally extensive to semi-extensive conditions. Breeding work with the Awassi has included within-breed selection, crossbreeding, and gene introgression.
In 1987 were imported from Hungary 50 ewes and 10 rams of the Awassi breed who settled in the Animal Husbandry Research Station of Korça, today Department of Livestock of ATTC, Korça, Albania when began crossing of local sheep breeds in agricultural farms. The aim was to assess the skills and characteristics of acclimatization, genetic purebred capacities of Awassi and its crossbreds, in terms of our goal for the dissemination to the agricultural farms of Albania. Awassi breed have great potentials for the harsh socioeconomic conditions prevailing in the new reclaimed areas depending on free grazing in poor pastures which lead to nutritional deficiencies, poor body condition, low fertility and decreased lamb crop. Have been studied for characteristics of productivity (milk production, meat, wool), reproduction (fertility, fertility, fecundity), resistance towards diseases etc., and those of acclimatization of purebred Awassi and its crossbreds in the first generations (F1), second (F2) and third (F3) with local breeds.

MATERIAL AND METHODS

The study carried out since 2000 year in parallel at the Department of Livestock and private farms. It was studied in the Department of Livestock the behavior of the breed to housing conditions, semi-intensive and extensive breeding systems in order to determine its capabilities in terms of acclimatization behavior in Albania and to develop technological packages for its pure breeding and crossbreds capacities.

The study was done by the method of groups: study group (sheep crossbreeding with choice by generations) and control group (sheep existing type).
There were carried out studies:
-Indicators of milk production,
-Indicators of development dynamics as lambs,
- Indicators of reproduction,
- Indicators of behavior in the new environmental conditions, resistance to disease, etc.

RESULTS AND DISCUSSION

In the Livestock Department Analysis show that the live weight indicator between groups of first and second and second and third groups have no statistically significant differences (P >0.05), while between the first and the third of this indicator is verified as statistically significant (P< 0.05). Differences between the third group with that of the second and first are statistically significant (P< 0.01) for milk production index. While the differences between the third and second for the same indicator are statistically significant (P< 0.01). The achieved results are concerned with the breed impact because the external factors in both groups; study and control have been the same. Compare with the control group (type of local sheep), fertility (birth rate), prolificacy (lamb crop), for several years resulted higher in study group for the first 4% and 15% for the second, as far as the indicators of milk production, live weight respectively resulted 60% and 10% higher in the study group.

Introducing Awassi blood sheep breed there has been a positive impact on precocity indicators. The data (Table 2) show that the average of male lambs' weight at birth and the end of suckling period are respectively 12% and 11% higher in crossbred groups with Awasi, while for females it is respectively 13% and 15% higher. Indicators of lambs precocity of Awasi crossbred are higher since the first generation and continue to the second and third ones.
Differences of those weights between first, second and third generations are not statistically significant (P >0.05), whereas for the three generations (F1, F2, F3) with the native type of

country sheep, differences are evident and statistically significant; in each case (P< 0.05).

Lambs morbidity resulted: F1 1.5%, F2 1.8%, F3 2.2%. The rate of the control group was 1.2%.

Crossbred	Heads number	Fertility (Birth rate) %	Prolificacy (Lamb crop) %	Live weight M± m	Milk productionM ±m	Morbidity %
x Awassi F1	100	90	120	44 ±3,7	70 ± 5.8	1.5
x Awassi F2	55	90	125	46 ±4.2	85 ± 6.3	1.8
x Awassi F3	37	92	135	47 ±4.4	110 ±7.8	2.2
Native	100	89	107	40±3.2	50±4.3	1.2

TABLE 1 Indicators achieved in the Department of Livestock

Crossbred generation	Live weight at birth (kg)		Live weight at the end of suckling (kg)		Sucklin g days	Average daily gain Suckling period, g/head/day	
Sex of lambs	M	F	M	F		M	F
x Awassi F1	3.5 ±0.25	3.4 ±0.15	12 ± 1.5	11 ± 1.2	60	141	126
x Awassi F2	3.6 ± 0.3	3.4± 0.25	12.5± 2	12 ± 2	60	148	143
x Awassi F3	3.66±0.4	3.45±0.3	12.6± 2.5	12.2± 2.5	60	149	142
Native	3.2 ±0.15	3.0±0.25	11.0±1.15	10.0±0.25	60	130	116

TABLE 2 Data on the dynamics of lambs' development of the Livestock Department

The number of crossbred sheep (F1, F2, F3) with Awassi is about 7000 individuals in Korça, Devolli, Pogradeci, Kolonja, Fieri, Lushnja, Elbasani, etc. and there are about 30 farms that are motivated and implement in contractual way the development of this breed. Results of 2008-2009 year in assisted farms are shown in Table 3. Results are issued through the surveys that were conducted in 10% of the farms leaders' number of different populations. Morbidity of ewe has been 2.0%, 2.2%, and 2.5%, respectively to F1, F2, and F3.

Results of research conducted at the Livestock Department of ATTC Korça show a trend of genetic capacity improvement indicators from first to the third generation. Precocity indicators as the lambs' weights at birth and birth-end of suckling period in flocks of private farms are higher compared to its existing type of sheep. The increase (%) is as far as the same to those of the sheep in the study groups of the Livestock Department of ATTC Korça.

Crossbred generation	Live weight kg	Fertility (Birth rate) %	Prolificacy (Lamb crop) %	Milk production kg/head	Morbidity %
x Awassi F1	44.5	91,2	117.5	60	2
x Awassi F2	45.4	92.	123	70	2.2
x Awassi F3	45.1	92.	134	90	2.5
Native	40.0	89.0	107	54	

TABLE 3 Productivity and breeding indicators in private farms

Crossbred generation	Live weight at birth		Live weight at the end of suckling		Sucklin g days	Average daily gain Suckling period, g/head/day	
Sex of lambs	M	F	M	F		M	F
X Awassi F1	3.4	3.3	11.5	10.8	60	135	125
X Awassi F2	3.6	3.4	12.3	11.5	60	145	135
X Awassi F3	3.6	3.4	12.3	12	60	145	143
Native	2.9	2.8	10.2	9.5	60	121	111

TABLE 4 Data on the lambs' development dynamics in private farms

CONCLUSIONS

1. Results obtained for some years at the Livestock Department of ATTC Korça, as well as those of the 2008-2009 years of the private farms, show that the crossbreds of Awasi breed are well adapted to climatic conditions and breeding systems that are implemented in Albania. These results are positive for all study areas, hills and plains. The lowest results were obtained in the hilly area; this is not of the genetic breed factor but of the external factors (nutrition, housing, etc.),

2. Awassi crossbred sheep had significantly ($P<0.01$) higher total milk production than native sheep,

3. Qualitative components of dairy fat and protein are lower in size compared to those of native sheep, but the milk production exceeds the total dry matter (fat and protein) during lactation and production of animal life,

4. Awassi crossbred sheep had significantly bigger fertility (F1 120%, F2 125%, F3 135%) than native (107).

5. Results achieved in terms of the current level of nutrition and environmental conditions makes possible to continue to introduce the full improved breed blood, while the hilly area would be sufficient until the second generation or third. We suggest this action.

6. To implement the improvement scheme designed is quite necessary to make the change of rams every two years through their acquisition at the Livestock Department of ATTC Korça and assisted farmers by the Department.

7. The improving work will continue using Awassi breed in areas where it is regionalized without damaging the genetic fund of indigenous breeds' populations of Albania.

The received results should be taken into account when use these breeds for genetic improvement of domestic sheep populations for dairy production.

REFERENCES

1. Albania private forestry development program, Fourth annual report, October 1 through December 31, 1999 Submitted to: United States Agency for International Development

2. BOYAZOGLOU G. J., 1991. Milk breeds of Sheep. In Genetic Resources of pig, sheep and Goat, World Animal Science, B, Disciplinary approach, Ed. K. Maijala, 243-255.

3. DE LA FUENTE, F. L., GABINA, D., CAROLINO, N., UGARTE, E. (2006): The Awassi and Assaf breeds in Spain and Portugal. Book of Abstracts

of the 57-th Annual Meeting of the European Association for Animal Production (EAAP). Book of abstracts, No 12(2006), 17-20 Septembar. Antalya, Turkey.

4. DIMOV, G., PACINOVSKI, N., GIEVSKI, M. 2005. Preliminary study on the basic factors which influence daily milk production of sheep in the Awassi Mediterranean Farm. Scientific conference. Trojan. 26-27 May.

5. EPSTEIN, H. (1985): The Awassi sheep with special reference to the improved dairy type. FAO Animal production and health paper 57. Rome, Italy.

6. GURSOY, O., PEKEL, E., OZCAN, L., TORUN, O. (1992): Genetic selection for milk yield in Awassi sheep. Reproduction and lactation. J. of Veterinary and Animal Sciences 16(1992), 535-546.

7. KUME K., (1997): The present state of sheep and goat farming in Albania. REU technical series 50: sheep and goat production in Central and eastern European countries. International workshop on "Sheep and Goat Husbandry in the Central and Eastern European Countries - A Struggle to Survive" organized in Budapest (Hungary) from 29th November - 3rd December 1997 by the Research Institute for Animal Breeding and Nutrition, Herceghalom, Hungary

8. MASON L. I., (1991): Breed differences in prolificacy in sheep. In Genetic Resources of pig, sheep and Goat, World Animal Science, B, disciplinary approach, Ed. K. Maijala, 235-242.

9. PLOUMI K., BELIBASAKI S., and TRIANTAPHYLLIDIS G., (1995): Some factors affecting daily milk yield and composition in sheep. . In 2nd IDF Seminar on production and Utilization of Ewes and Goats Milk, Crete ,19-21 October 1995, 56

10. POLLOTT, E. G., GURSOY, O., KIRK, K. (1998): The genetics of meat and milk production in Turkish Awassi sheep. Proceedings of the 6th world congress on Genetics applied to livestock production. Armidale, NSW, Australia, January 11-16. Vol. 24:177-180.

11. TODOROVSKI, N., TANIC, L. & STOJANOVSKI, L.J. (1975): First results of the milk production and fattiness of milk from imported Awasi sheep in the private sector of the economy. Yugoslavia. Bull. Sci., A, 20: 1-2.