

# MILK PRODUCTION OF BUSH COW BREED KEPT IN PASTURE

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## ABSTRACT

The purpose of breeding cattle in Kosovo is mainly dairy and meat production. Milk production is a very important sector of the economy in Kosovo. Because the aim to improve the breed structure, most cattle cultivated in Kosovo are mainly productive breeds, while local Busha cattle are presented in very small numbers. Breeding of high productive cattle in Kosovo, many times is followed not only with the high cost, but often accompanied by other problems, as well. The purpose of this study was to determine the level of productivity of Busha breed kept in pasture. In four localities of Prizreni region, was conducted the assessment of the chemical composition of pastures, type of ration used to feed Busha cows and milk production data during the three lactations were collected. Determination of chemical composition was analyzed by spectroscopic method using NIRS 6500 facility. Results show that a Busha cattle feeding mainly is based on the use of pasture (250 days/year), while the rest of the year are kept at stables for about 115 days/year. The average yield of pastures considering the green mass was about 5050 kg per hectare. In the botanical composition of pastures dominate the family *Gramine* plants (55.35%), followed by *Leguminosae* (31.37%), and other plants taking this share with about 17.68%. The chemical composition of pasture plant mass (expressed in dry matter-DM), was characterized by high content of cell wall components (ADF 40.47% and NDF 60.04%) and satisfying protein content (12.01%). Other feed staff mostly used was corn, which contained about 0.73% minerals, 3.58% fat%, moisture 8.22, protein 6.54%, and starch 64.23%. Fed by these valuable nutrients from grasses and corn grain, Busha cows produced about 1143.9, 1306.5 and 1515.9 kg milk in lactation 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup>, respectively.

**Keywords:** Milk production, Busha, Gramine, Leguminosae, grass.

## INTRODUCTION

Milk production is a very important sector for the economy. B Because the aim to improve the breed structure, most cattle cultivated in Kosovo are mainly productive breeds, while local Busha cattle are presented in very small numbers. The living conditions for Bush cattle are mostly in hilly and mountain areas, where hardly other breeds are bred. Although this breed is characterized by small body size and low productivity compared with high productive breeds (e.g, Holstein, Brown Swiss and Simmental), breeding and overall management of this breed is characterized by a very low cost compared with other breeds. Breeding of high productive cattle in Kosovo, many times is followed by a high production costs and accompanied by other problems, as well. Inadequate use of pastures resources is one of the reasons contributing significantly to the high cost of production. Although there is no exact evidence about many aspects related to pasture production in Kosovo, this plays an important role regarding forage resource. According to the Forestry Agency of Kosovo, 31% or 342 400 ha of the total area is agricultural land, while 13.95% or 153.200 ha are pasture. These areas represent a good opportunity for the development of livestock and livestock products with lower cost. Kosovo

pastures are characterized by a good variety of plants (Mehmeti et al., 2011) and with good nutritional value (Kamberi et al., 2011). Given this fact, local Busha breed of cattle is characterized by good pasture utilization during most of the year, resistance to diseases, the possibility of breeding even under difficult conditions. All those facts, stress the need that in the future should be given a greater attention to this breed considering the low production cost and environmental adaptability in Kosovo (Bytyqi et al., 2011; Bytyqi, 2013). Therefore, the main goal of this research was to study milk production of local Busha in Kosovo based on current management and feeding conditions.

## **MATERIAL AND METHODS**

Taking into account the actual situation of the small number of Busha cattle remaining in Kosovo, our study was focused in the Dukagjini region, mainly in the areas of Prizreni region. The survey included a total of nine villages: Village Gjonaj Mazrek, Bregdrinit, Planej, Dedaj Krajke, Kojushë, Arbanë, Romajë (Figure 1).



*Figure 1. The study area*

The study involved two key parameters used (Figure 2 & 3):

- a) the chemical composition and amount of forage and concentrated feed, and
- b) the impact of ration offered in milk production

The study included 32 head of Busha cows in 8 localities of Prizreni region. In total, 12 samples of pasture and 6 samples of maize grain were analyzed.



*Figure 2. Maize grain*



*Figure 3. Busha cow breed in pasture*

In order to record the data, with regard to nutrition parameters, feed type and quantity of concentrated and forage used in a daily ration, pasture utilization parameters in days/year, milk production for three following lactation and by months, appropriate questionnaires were prepared.

**Table 1. Locations and the number of cattle per lactation**

Breed	Locality	Nr. Of cows according to lactation			Total nr. Cows included
		Lactation 1 <sup>st</sup>	Lactation 2 <sup>nd</sup>	Lactation 3 <sup>rd</sup>	
Busha	Gjonaj		1	2	3
Busha	Mazrek	2	1	1	4
Busha	Bregdrit		3	1	4
Busha	Planej	1		3	4
Busha	Dedaj	3	1	1	5
Busha	Krajke		1	2	3
Busha	Kojush	1	2		3
Busha	Arbane	2		1	3
Busha	Billushe	1	1	1	3
Total		10	10	12	32

**Botanical composition:** To determine the botanical composition of pasture and pasture samples in the study region the botanical atlas Saric, (1991) was used.

**Chemical Composition:** After sampling pastures and botanical composition determination, samples were milled to size 0.01 mm and were prepared for chemical analysis in the laboratory for animal nutrition of the Faculty of Agriculture and Veterinary. Dry ingredients were determined using NIRS apparatus 6500. Statistical analyses of the results obtained from this research are done through Excel 2007 software.

## RESULTS

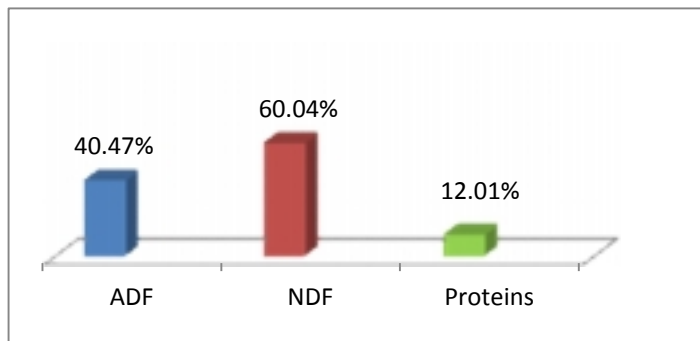
In Table 2, the average milk production data per lactation 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, are presented.

**Table 2. The arithmetic averages for milk production for three lactation for Busha cows recorded by month.**

Lactation	Average milk production	Lactation month								
		I	II	III	IV	V	VI	VII	VIII	IX
I	Milk production (kg/d)	4.4	5.35	6.72	5.0	4.8	3.9	3.36	2.7	1.9
II	Milk production (kg/d)	4.9	6.65	7.35	6.5	4.85	4.6	3.85	3.35	2.5

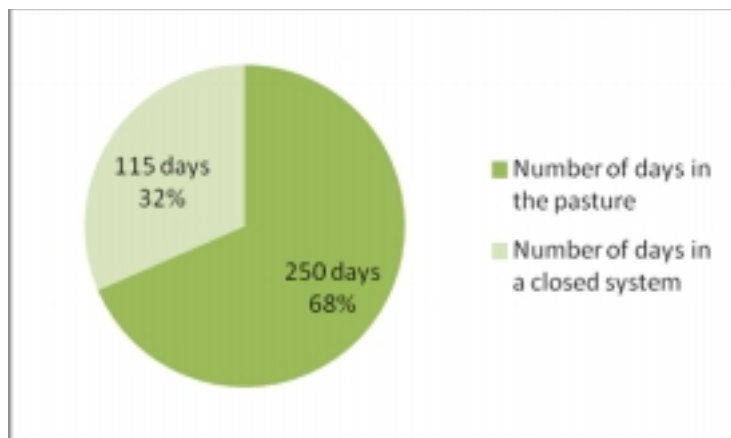
III	Milk production (kg/d)	6.33	7.75	8.78	7.33	6.20	5.28	4.41	3.7	3.12
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In this case, lower productivity throughout the months of lactation was yielded in lactation 1<sup>st</sup> with variations from the highest (6.72) kg/day and the lowest 1.9 kg/day. This low productivity was considered normal when considering the animal growth has not been finished, yet. In the lactation 2<sup>nd</sup> there was a slight increase in production from 7:35 kg/day the highest to 2.5 kg/day the lowest. While, in the lactation 3<sup>rd</sup> was characterized by higher production compared to previous lactation 1<sup>st</sup> and 2<sup>nd</sup> cows yielding the highest milk about 8.78 kg/day and lowest 3.12 kg/day. In present study, the milk amount suckled by calf was not included in a total amount presented. This is a general calf management characteristic for the first 3-4 months after birth.



**Figure 4. Chemical composition of pasture (n=12)**

The results presented in Figure 4, show the chemical composition of pastures analyzed. Based on the results obtained the pastures were characterized by a presence of high cell wall constituents content with about 40.47% ADF (acid detergent fiber), about 60.04% NDF (neutral detergent fiber) and protein content at level of about 12.01%.



**Figura 5. Average time spent for Busha cattle outdoor (pasture) and indoor**

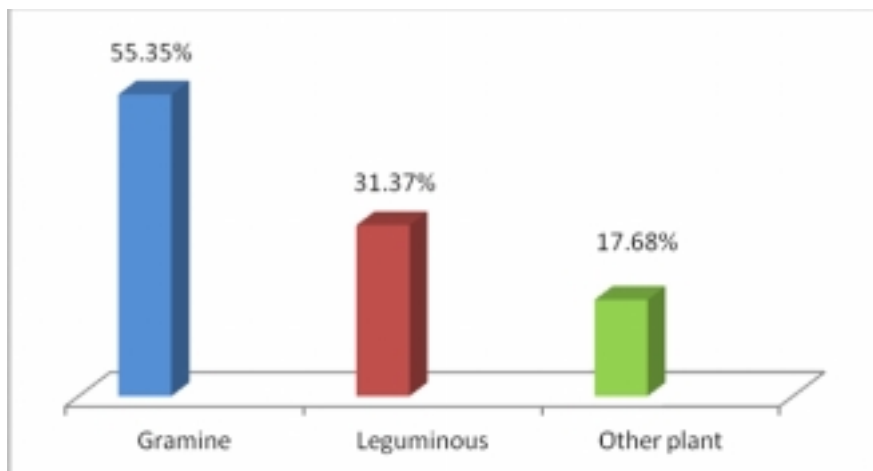
The results obtained show that the use of natural pastures for local Busha breed is characterized by a very long period of 250 days (outdoor feeding period) per year that significantly contributes to a low cost production compared to other breeds. During this period the feeding is almost based

entirely on pasture resources. While, indoor feeding periods was about 115 days/year. The indoor feeding is based mainly on hay and a small amount of corn.

**Table 3. Chemical ingredients of corn grain**

INDICATOR	CONTENTS,% LTH
GRACE	0.73%
FAT	3.58%
MOISTURE	8.12 %
PROTEINS	6.54%
STARCH	64.23%

From concentrate feed staff, mainly was used maize. Maize samples analyzed averaged about 6.54% protein, about 0.73% ash, fat about 3.58%, about 8.22% moisture, and starch about 64.23%.



**Figure 6. Pasture botanical composition, %.**

The results in Figure 6, present the average of the botanical composition of pastures in the analyzed locations. From these data shown, the *gramine* type of plants were present the highest with about 55.35%, followed by *leguminous* with about 31.37%. Other plants were present at the rate of about 17.68%. From these results show that the type of plant gramine is dominant compared with leguminous and other plants.

## Discussions

Generally, from these results show that the type of plant *gramine* is dominant compared with *leguminous* and other plants. Taking into account the chemical composition and value of natural pastures and corn grain used in the ration, the participation of plants in pastures and pasture usage period (outdoor feeding), the results obtained from this research are characterized by considerable impact on production of milk of Busha cows. The effect was also on economic aspects producing under low cost production (results not shown). Daily rations used for feeding of Busha cows in this locality meet the requirements for the current milk production. In addition, this fact could illustrate better when it combines also other traits (e.g., fertility traits, body condition score, etc). Use of natural pastures in a period of 250 days within the year of Busha cattle, ranks this breed among those producing most economically. Therefore in the future should be devoted greater attention to the significant improvement of pasture flora, increasing the quality of rations used in order to create the possibility of increasing the productivity and genetic improvement of this breed.

## Conclusions

Considering the semi-extensive cattle management system current in Kosovo, the results of the research can conclude that local Bush cattle represent a good opportunity for development of cattle production. A long period of pasture uses as one of the greatest forage resources make this breed very favorable for small scale farming system and manageably in the remote areas, where farming for other high producing breeds seems to be a problem.

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The 1<sup>st</sup> International Conference on "Research and Education – Challenges Towards the Future" (ICRAE2013), 24-25 May 2013

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