

## Breed Composition of Cattle in West Herzegovina Canton

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### Introduction

West Herzegovina Canton is located in West Herzegovina and belong Federation Bosnia and Herzegovina. Townships: Široki Brijeg, Posušje, Ljubuški and Grude form part of this canton. Before war (1992) majority of inhabitants had occupy themselves by agriculture production. After war (1995), agriculture production has decreased especially production of tobacco and cereals and considerably part of inhabitants have incomes from primary agriculture production. Numerousness of livestock in cattle breeding has decreased with trend of decreasing but numerousness of sheep is increasing in relation to period before war. Population of cattle is characterized by breed mixture of types and their bastards. West Herzegovina Canton has not sufficiently developed buying off milk from country estates and it is represented in parts of Široki Brijeg and Posušje. Area of West Herzegovina Canton has moderately Mediterranean and Mediterranean-mountain climate in the parts of these townships. Whole Canton is located in Karst area with characteristic fields.

Buša is autochthonous breed of cattle in this area that is almost disappeared. There is necessity for protection of this breed from disappearing in Canton and Federation Bosnia and Herzegovina and the aim of this paper is to represent situation in cattle breeding.

### Material and Methods

It is made tour and autochthonous of country estates in year 2003. It embraced twelve countries with 201 country estates that have 390 milch-cows whose milk is buying off from dairy-plant. It is cased up sums data of numerous of cows in township, canton and country estate. Breed belonging of cattle is made considering exterior and age group considering declaration of the owner. Exemplars of Buša cows are measured by Lydtin stick (height of crest and length of trunk). Obtained data are worked out statistically.

### Results and Discussion

Numerousness of livestock in recent years is not confidently. These are only approximate estimates but it is not worked out any listing from 1991 year. It can affirm that numerous of cattle are decreased in relation to period before war from 50 to 60%, while numerous of sheep has constant trend of increasing (Ivanković, 2002)

Table 1. represents the numerous of cattle and sheep in two townships in years 1987 and 1991.

Table 1.

	Posušje		Široki Brijeg	
Year	1987	1991	1987	1991
Cattle	6041	4748	5360	4226
Sheep	3473	2333	4778	3844

Table: 2. Breed Composition of Cattle in West Herzegovina Canton

Breed	Široki Brijeg			Posušje			West Herzegovina Canton		
	Number	%	Age Months	Number	%	Age Months	Number	%	Age Months
Buša	5.00	4.30	110.00	2.00	0.70	149.00	7.00	1.80	121.00
Bastards buša and gatački breed	17.00	14.60	87.00	94.00	34.30	68.00	111.00	28.40	71.00
Grey	5.00	4.30	50.00	18.00	6.56	65.00	23.00	5.89	60.00
Brown	13.00	11.20	71.00	30.00	11.00	54.00	43.00	11.00	59.00
Black-white bastards HF	41.00	35.30	87.00	32.00	11.60	55.00	73.00	18.70	73.00
Simental	15.00	12.90	47.00	46.00	16.80	46.00	61.00	15.60	47.00
Indefinite types	20.00	17.20	75.00	52.00	18.90	68.00	72.00	18.40	70.00
	116.00	29.70		274.00	70.30		390.00	100.00	

Table: 2. represents data about breed composition of cows in examined sample. These data represent breed mixture and type belonging. In area of Široki Brijeg respectively countries around Mostarsko blato (field): Ljuti Dolac, Biograci, Jare, Uzarići and Knešpolje there are mostly bastards HF and HF breed. The reason why this breed overcomes is extended application artificial insemination with bull sperm of HF breed. This area is around Karst field with high-grade fodder for cattle. Indefinite types are represented with 17.2% and bastards of buša respectively gatački breed with 14.6% cows. This typological group from generation to generation has decreasing of number. Simental breed is represented with 12.9% and numerically has fourth place. The reasons of this number are that last ten years (after war) there is significant import of simental breed for slaughtering in Herzegovina. Number of country estates has bought heifers imported for slaughtering and leave them for breeding, another reason is using of natural admittance with bulls from import also assigned to slaughtering and artificial insemination of cows of this breed with simental sperm. Buša as autochthonous breed is represented with 4.3% (5 cows) and it has the smallest numerousness among cows. Bušas are on average the oldest, 9.16-year, while the simental cows are the youngest, average 3.9 year. Green old age of buša is consequence of its long life, but there are not young cattle kept for breeding a both sex that is disturbing. Bušas admit or artificial fecundate with other breeds that this breed is disappearing and remaining their bastards.

Breed composition of cattle in township Posušje is characterized by population of buša and gatački breed with 34.3% and indefinite type 18.9%. These two type groups have 53.2% population of cattle, after them cows simental breed have 16.8%. Significant representing of simental breed in township Posušje has the same reasons as in the township Široki Brijeg. Grey Alpine breed is represented with 6.56% and brown 11.0% that is not numerous considering good conditions for its adaptation. Typical-intact population have only two samples (0.7%) average age 12.4 years. Contemplating complete West Herzegovina Canton gatački breed and buša bastards are represented with 28.4%, black-white-HF breed with 18.7% and indefinite types with 18.4%. Buša is represented with 1.8% in whole population.

Average number of milh-cows per examined country estate for township Posušje is 2.22, while for township Široki Brijeg it is 1.48 and 1.94 for West Herzegovina Canton.

Country estates with one cow are the most numerous and represented with 45.1%, with two cows 37.8%, only 11.6% country estates have from 3 to 5 cows, while 5.5% of them own 6 and more cows.

Past researches of breed and typological composition of cattle in township Posušje was doing Popović and Antunović (1983). They embraced the same colonies as we did on the sample of 172 cows that was 5.3% of complete population of cattle in township. Bastards of buša was represented with 43.0%, gatački breed with 16.8%, bastards of pincgavac with 7.5%, bastards of grey breed (Tyrolean) with 16.8%, bastards HF with 2.9%, indefinite types with 11.6% and intact buša with 1.16%. Comparing our research with these results it can be seen that intact buša has not been numerous in the past while overcame bastards of buša and gatački breed (59.8%). During last twenty years share of this population has decreased for 25%, while numerous of bastards HF breed and indefinite types from 11.56% to 18.9%. Their analysis has not registered brown and simental breed while they are represented with 27.8% in today population of cattle. Brown breed of cattle is beginning to enter in area of this canton towards of 80 years by artificial insemination of cattle and obtained bastards. Telalbašić and co-operators (1979) was doing typological and exteriors characteristic of cattle in townships Duvno, Kupres and Prozor. Prozor and Duvno (now Tomislavgrad) are neighbour townships to Posušje and because of comparing of breed composition we cite that authors are registered the smallest number of buša and cows in type of buša in 10.7% and in Prozor 7.0%. Pincgavska breed was represented with 1% in Duvno while there was not this breed in Prozor. Grey breed was represented with 64% in Duvno and with 17.4% in Prozor. Authors cite that expansion of grey breed (Tyrolean) from Livno has significant influence on breed composition. In area of Livno and Gacko during Austro Hungarian monarchy in period from 1892 to 1916 bulls and smaller heifers was imported for cross-breeding with autochthonous buša. Gatačko head of cattle was originate from this cross-breeding. Indefinite types that have blood from different types were represented with 18.4% in Duvno and with 8.7% in Prozor.

Popović D., Zora Vidović and Nakić S. (1979) was doing breed analysis of cattle in township Mostar. They founded representing of buša 8.9%, bastards of buša 61.3%, grey breed 26.9% and 2.73% cows of brown, frizijska and pincgavska breed. Township Mostar is neighbour to township Široki Brijeg and belong to this climate.

Comparing the share of breed and types of cattle in area of Herzegovina and South-West Bosnia during last twenty years visible is decreasing on numerous of autochthonous buša breed and its bastards and at the same time increasing of numerous of more productive breeds' simental, brown and HF breed.

Buša belongs to autochthonous breed of cattle in this part of Europe. During last 100 and more years buša was crossbred and kept back by more productive breeds of cattle because of that it was carried almost to disappearing. Konjačić and co-operators (2004 cite Fragneš 1903) cite that representing of buša (Illyrian head of cattle) at the end of 19<sup>th</sup> century in karst area of Kingdom of Croatia, Slavonia and Dalmatians is over 92%. Exteriors characteristics of buša are product of breed and ecological influence that it became and developed.

Table 3. Height of crest and length of trunk in buša (cm)

	n	$\bar{x}$	s	Min	Max
Height of crest	7.00	106.40	4.03	102.00	114.00
Length of trunk	7.00	119.20	5.18	114.00	130.00

Table 3. is representing height of crest and length of trunk measured in buša:

- Popović and Antunović (1983) are examined height of crest of buša (n=2) 100.5 cm that is less for 5.9 cm, while the trunk is longer 5.3 cm.
- Popović, Zora Vidović and Nakić (1979) measuring exterior of buša (n=23) are examined height of crest 99.26 cm and length of trunk 122.8 cm.
- Sučić (1978) in area of Velika Kladuša (West Bosnia) measured height of crest of buša was 107.8 cm and length of trunk 122.6 cm.
- Ilančić (1952) in area of Stolac (Herzegovina) measuring was examined height of crest 105.5 cm and length of trunk 118.7 cm.

The oldest measuring of buša has done Adametz (1895) and measured height of crest was 103.4 cm and length of trunk 120.6 cm.

Konjačić and co-operators (2004) gave later-day researches of cow exterior buša “in type” for Republic of Croatia. They have examined (n=32) average height of crest 113.97 cm and length of trunk 135.27 cm. Authors notice that selected buša’s “in type” are mostly one colour cattle, with pigmentation of hair from almost white, over different variation of red and brown to black or striped (tiger pattern) head of cattle. In each samples skin is pigmented with visible eel line on the back. The head is narrow and longish, while the tops of horns are black. It has characteristic of a roe-buck snout and the udder is small and non-pigmented.

Exterior of buša is fairly researched and it examined wide variability of corporal characteristics depend of different breeding conditions. Despite possibilities of variations corporal characteristics measured bušas in area of West Herzegovina Canton, this assertion can be applied in whole Bosnia and Herzegovina, are expressive small cattle in relation to more highbred breeds. Intact buša can be found only in areas extensive farming. Except not numerous of buša disturbing fact is old age of founded cattle. During this measuring there was not any young head of cattle of buša because existing fertile bušas are admitted or artificial fecundated by bulls of other breeds.



Figure 1. BUŠA. Locality Crne Lokve



Figure 2. BUŠA. Locality Ljuti Dolac

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### Conclusion

On the basis of obtained results it examined that in breed composition of cattle in townships Posušje and Široki Brijeg and also in West Herzegovina Canton dominate variability of breed and breed types.

Representing of bastards of buša and gatački breed is the highest and next are bastards black-white and HF, indefinite types and simental breed.

There is no numerous of cattle per country estate that shows market of milk is not developed.

Analysis of breed belonging of cows shows that there is not serious expert work on breed regionalization and introducing more productive breeds of cattle in agro-ecological condition that dominate in this area.

Buša as autochthonous breed of cattle in this area is almost disappeared.

Numerous of buša and its status point at necessity prompt reaction all competent institution and interested for saving its genome. These action include organized expert-scientific and financial engagement it the aim recuperation of buša and controlling of numerous as breed that has its precedence and defectiveness.

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