

ANIMAL BIODIVERSITY CONSERVATION, A KEY OF SUSTAINABLE AGRICULTURE. CASE STUDY: THE ROMANIAN PINZGAU BREED IN TRANSILVANIA REGION

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Abstract

Pinzgau breed or Pinzgauer is called after its region of origin (place Pinzgauer, near Salzburg, Austria) and is a mountain breed of cattle. The breed appeared in the 19th century from local mountain breeds and was developed in three directions: traction, milk and meat. Recent research has shown that specimens of the Pinzgau breed feed recovered well from such areas, farmers, to get average yields, having to buy a small amount of concentrated feed for animal ration to complete. In Romania, Red Pinzgau breed formed after absorption crosses made between local breeds of cattle (Grey Steppe and Mocănița) and Pinzgau of Austria, since the second half of the nineteenth century, and black Pinzgau named "Cow of Dorna" by crossing local cattle with various mountain improved breeds (Pinzgauer, Mölltal, Zillertal, Dux-Zillertal, Dutch, Brown, etc.). The breed is exploited in three areas: NW of Moldavia, SW of Transylvania and W of Transylvania - Apuseni Mountains. Transylvanian Pinzgau breed has a sound constitution, lively temperament, docile character, precocity mediocre, high longevity, good capacity of adaptation, resistance to disease and weather. Has a multilateral skill (milk, meat, traction). These things are the main reasons why race should be kept in a form of active conservation. Moreover, in order to preserve the tradition and traditional products in Romania, it required to maintain this breed and even the formation of its national park.

Key words: Transylvanian Pinzgau, active conservation, sustainable agriculture.

INTRODUCTION

Around 1820, cows of Pinzgau were exported to countries like Romania, Yugoslavia, Czech Republic and Slovakia. Moreover, currently breed is present in over 25 countries worldwide. In South Africa, Canada, USA and Australia, Pinzgau prospered even in the harshest environmental conditions. Resistant hooves, able to cover great distances, even coat color, which allows UV protection, are what made this population of cattle to be appreciated by farmer's cows on five continents [2].

The ancestors of the breed were brought by the Celts around 800 DC. In time, have evolved several types of race, according to the development area (Salzburg, Tyrol, Carinthia, Bavaria and Styria), showing a predominantly mottled coat colour on brown background, but

black. In 1857, Baron Freiherr von Mesnil described Pinzgau specimens with a full coat with a brown or white line on the abdomen and the upper line [2].

Unique colour mottled red-brown spots on the body side and white line became race character. Individuals presenting black and white robe, called the "lucky line" survived like animals that every farmer was proud to have. But breeders associations preferred animals with red-brown with white robe which meant that in time black variety become very rare [2].

During the Austrian Empire, the breed was quickly spread to other parts of it and today, can still be found in Austria, Slovakia and Romania. When used as traction animals have lost importance, the breed was developed in two directions: milk and meat, in alpine areas, while exploiting the ability of animals to long marches on rough terrain. This last feature was

the main reason for the export of pure-bred specimens. In countries like South Africa, Australia and the United States of America, Pinzgau was raised for one purpose, that meat breed.

In last decades, even in the birthplace, the number of specimens of the breed declined drastically due to changes in "fashion" and intensive agriculture, which caused the race to be in danger. Pinzgau, only Austrian indigenous breed, worldwide famous, should receive special attention through the establishment of national park and through the use of race to achieve its organic productions.

In Romania, Red Pinzgau breed formed after absorption crosses made between local breeds of cattle (Grey Steppe and Mocănița) and Pizgau of Austria, since the second half of the nineteenth century, and black Pinzgau named "Cow of Dorna" by crossing local cattle with various mountain improved breeds (Pinzgauer, Mölltal, Zillertal, Dux-Zillertal, Dutch, Brown, etc.). The breed is exploited in three areas: NW of Moldavia, SW of Transylvania and W of Transylvania - Apuseni Mountains.

Transylvanian Pinzgau is characterized by mixed morphology type, variable body development, meeting three types: hypermetric (size 131cm, body weight 520 kg in the southwestern Transylvania), eumetric (127 cm and 460 kg in Suceava County) and hypometric (122 cm and 400 kg in the Apuseni Mountains), mezobrevimorfe profiles and less harmonious conformation. It has a large head, full; strong neck with developed dewlap; trunk not too long, but deep, with left top line, croup narrow at the ischium, big abdomen, globular udder and solid states. The colour is typical for Pinzgau, that dark red with white features drawings. Dorna cow has size less than 1-2 cm than Red Pinzgauer, made more pronounced rectangular body, bones and muscles better developed and the background colour black (in Moldova there is a colour polymorphism of red and black, or black variety of Pinzgau). Black Pinzgau was seen as a distinct type (population), with different characteristics (Fisteag, 1958), although it is or not reproductive isolated [2].

The purpose of this paper is to estimate the number of Transylvanian Pinzgau individuals

from the area of Suceava County, to characterize individuals in terms of production, to describe breeding systems and to question breeders about the purpose of exploiting breed in over others more productive.

MATERIAL AND METHOD

Research was conducted during 2001-2012, being a component of a complex project that aims to achieve a sustainable program for management of Pinzgau genetic resources. Based on official records provided by A.N.A.R.Z. (National Agency of Animal Recording), breed mapping was done, an estimate of the number of animals in pure breed and hybrid, and a characterization in terms of production ability. Also, by moving (February-March 2012) in the Transilvania Region tried to characterize the breeding systems and breeders asking about the exploitation of the breed. Research methods were observation, analysis and questionnaire.

RESULTS AND DISCUSSIONS

The situation of Transylvanian Pinzgau breed showing a higher proportion of crossbred versus pure breed (23120 heads in total, of which 46.24% pure breed and 53.76% crossbred), it have seen a redistribution of areas for growth and exploitation, by emergence of new ones. Thus present in Table 1 mapping of Transylvanian Pinzgau breed in early 2012.

Table 1. Mapping of Transylvanian Pinzgau breed in 2012 [5]

Specification	Total	Pure breed	Hybrid
Alba	1101	651	450
Bacău	28	-	28
Bihor	490	-	490
Bistrița	893	447	446
Cluj	35	-	35
Hunedoara	391	140	251
Mehedinti	6	-	6
Neamț	1243	463	780
Sălaj	110	93	17
Sibiu	1330	818	512
Suceava	16460	8040	8420
Tulcea	983	14	969
Vâlcea	50	25	25

The dramatic situation of Pinzgau breed in Romania is reflected in the number of females registered in the herd book - Table 2.

Table 2. Number of cows registered in the herd book during 2005-2008 [5]

Herd book section breed	A	B	C	D	TOTAL
Brown	2032	3835	-	17050	22917
Romanian Simmental	2371	5263	375	38563	46572
Romanian Holstein Friza	7976	6522	39	45064	59601
Transylvanian Pinzgau	14	38	-	466	518
Buffolos	-	29	-	205	234

Situation of females entered in the Herd Book from different counties in Transylvania is presented in Table 3. Note that Bihor County has the highest number of females entered in Section D. We can underline that the situation of Pinzgau in Transylvania counties is dramatical, consequence of proportion of individuals entered in section D (crossbred).

Table 3. Number of cows registered in the herd book, from different counties during 2005-2008 [5]

County cod	County	Pinzgau breed				TOTAL
		A	B	C	D	
1	BIHOR	3	5		15	23
2	BISTRITA				9	9
5	MARAMUREŞ				2	2
6	MUREŞ				1	1
9	SIBIU				1	1
	TOTAL	3	5		28	36

Note: - minimum 87.5% purity is in A, 75% B, 62.5% in C
 - difference of up to 100% in A, B, C will be Red Holstein
 - in D will enter crossbred at least 50% Pinzgauer, and Red Holstein and at least 25% Pinzgauer.

Distribution of Transylvanian Pinzgau animals of types of farms is presented in Table 4. Note that the largest weight of holding is owned by those of 1 or 2-3 heads, in subsistence farms. This confirms that the maintained of breed in exploitation was due to tradition and intuition of breeders.

Table 5 presents the number of lactation and average milk production (L), fat (G) and protein (P) on standard lactation and reproduction indicators (calving interval - CI and age at first birth - VP), depending on control lactation rank since 2008-2009.

Table 4. Number of recording farms from different counties according to the size of Pinzgau livestock, in 2009 [5]

County	The size of livestock								TOTAL
	1	2-3	4-7	8-15	16-31	32-63	64-127	>127	
BH	11	4	0	0	0	0	0	0	15
BN	12	3	0	0	0	0	0	0	15
CJ	1	0	0	0	0	0	0	0	1
MS	1	0	0	0	0	0	0	0	1
SM	1	0	0	0	0	0	0	0	1
SJ	5	0	0	0	0	0	0	0	5
SB	1	0	0	0	0	0	0	0	0

Milk production situation of Transylvanian Pinzgau in different counties of Transylvania region and according to the size of the herd (end of 2009) is presented in Table 6.

The data presented in Table 6, the conclusion that emerges is that the rule in terms of lactation number and size of holdings is owned by the county of Bistrita Nasaud.

These has a significant number of farms over the four heads that come out from under the stigma of subsistence farms. Also, noted higher average values for the quantity of milk in Bistrita Nasaud, probably due to a higher percentage of crossbred (Simmental x Pinzgau). The highest percentage of immigrant blood in Bistrita Nasaud (16.7%), explains the higher average amount of milk recorded here.

To consider the production main reason of Pinzgau breed drastic reduction number and risk status change is, in our opinion, an error. Not productive limitation is the reason.

We discuss by the average values of milk production by 4100-4500 kg of lactations no III-IV, which provides a minimum value of economic efficiency of any holdings. If we add high quality of meat, the degree of adaptation to environmental mountain conditions, disease resistance (practically no leucosis), excellent recovery of alpine pastures, low concentrated demand, lower intake (a consequence of the waist), small investing shelters (tough/resistent breed), etc. we have a complete picture of a false problem.

Table 5. Romanian Pinzgau characterisation in terms of productive and reproductive skills [5]

Lactation	No of lactations	L kg	G		P		VP		CI days
			kg	%	kg	%	mounth	days	
1	17	4176	161	3,85	135	3,23	30	0	
2	28	4051	159	3,90	134	3,29			366
3	20	4046	155	3,83	130	3,21			345
4	28	4200	164	3,89	136	3,24			341
5	29	4279	169	3,93	141	3,29			367
6	22	4264	167	3,90	140	3,26			374
7	10	4139	160	3,87	135	3,27			378
8	9	4185	162	3,86	135	3,23			335
9	9	4480	171	3,81	143	3,19			390
10	5	4469	172	3,84	146	3,28			344
11	3	3760	143	3,78	121	3,30			345
Total	180	4188	163	3,88	137	3,26			359

Table 6. Number of lacations (N) and average milk production in Maturity Equivalent (L, kg) in different counties and according to the size of the farm (E) and percent of pure blood (%S) (source: ANARZ)

County	n.lact kg L	E								Total	%S
		1	2-3	4-7	8-15	16-31	32-63	64-127	>127		
BN	N	0	3	6	6	2	1	0	0	18	
	L	0	5069	5275	4571	4608	3403	0	0		83.3
MS	N	0	1	0	0	0	0	0	0	1	
	L	0	6136	0	0	0	0	0	0		100
SJ	N	0	1	0	1	0	0	0	0	2	
	L	0	3652	0	4298	0	0	0	0		50

In our opinion, the reason of Pinzgau vulnerability is fashion of indiscriminate "hollsteinisation and simmentalisation" of Romania, coupled with aggressive actions of economic agents involved in the importation of semen.

To these can be added: the lack of specialized education, the existence of "blindness" of specialists and total indifference to promote organic and sustainable agriculture, and conservation of biodiversity in all its aspects (matter that is an education issue also) [4].

In Romania, as the result of a series of works [1, 2, 3] cattle production comes in over 80% from subsistence farms, family farms, small commercial farms.

In Transylvania region the breed is about 1% of all cows exploited, consequence of "simentalisation". A very small number of farmers preserved traditions and structure of agricultural land area. In this area, as shown in the show until now, holding over 4 heads have the smallest weight. The shelters are simple construction, made of wood. Very rarely, cattle feed concentrates.

By moving (February-March 2012) in the Transylvania region (in different counties) we ask the breeders about the exploitation of the breed.

When the farmers were asked why exploited this breed, most (96%) responded that the situation was inherited from parents; 2% said that cows are resistant to disease; 2% said they products obtained from milk have special qualities.

CONCLUSION

Due to its rusticity qualities, resistance to the specific environment hilly and mountainous areas, with a remarkable productive longevity and survival, expression of her genetic distinct from other breeds, Transylvanian Pinzgau must be considered a component of national genetic resources. It should go immediately into active conservation program [3, 4]. Otherwise we will lose soon a valuable genetic reserve for livestock of Romania.

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