

CURRENT PERSPECTIVES FOR MANGALICA AND BAZNA PIGS BREEDING FOR EFFICIENT BIODIVERSITY MANAGEMENT, GENETIC CONSERVATION AND ANIMAL IMPROVEMENT IN ROMANIA

PERSPECTIVE CURENTE ALE CREȘTERII PORCILOR MANGALIȚA ȘI BAZNA PENTRU UN MANAGEMENT EFICIENT AL BIODIVERSITĂȚII, CONSERVARE GENETICĂ ȘI AMELIORARE ÎN ROMÂNIA

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ABSTRACT | REZUMAT

Biodiversity conservation and animal improvement is still a concern at the national and international level. The present paper is focused on the national efforts throughout livestock inventory of indigenous pig breeds and governmental support programs for stimulating Mangalica and Bazna farming, a valuable tool for animal improvement and genetic conservation. Endangered breeds or in critical status, menaced by disappearing or crossbreeding, especially in pigs, demand an efficient management system to overdraw these threats, starting from livestock inventory.

Keywords: Mangalica breed, Bazna breed, indigenous pig livestock inventory, genetic conservation

Conservarea biodiversității și ameliorarea animalelor reprezintă în continuare o preocupare la nivel național și internațional. Prezenta lucrare redă eforturile la nivel național cu privire la inventarierea resurselor animale, respectiv a raselor de suine indigene și programele de sprijin guvernamental, în vederea stimulării creșterii raselor Mangalița și Bazna, ce constituie un mijloc valoros pentru ameliorarea și conservarea genetică a animalelor. Rasele aflate în pericol de extincție sau într-o stare critică, amenințate cu dispariția sau încrucișarea cu alte rase, în special la suine, necesită sisteme de management eficiente pentru a depăși aceste pericole, pornind de la inventarierea resurselor animale.

Cuvinte cheie: rasa Mangalița, rasa Bazna, inventarierea resurselor de suine indigene, conservare genetică

Worldwide pork production is continuing a long-term trend of increasing in terms of livestock inventory and meat production (4, 5, 13). Also, the standards for quality and food safety criteria are targeted, to meet the consumers' demand (7, 8, 14). China is worldwide production of pork leader, showing over 50 million metric tons of pork produced in 2016, more than twice as high as the amount produced in the EU, meanwhile the United States is third in global pork production, meaning 11.3 million metric tons (10). According to the number of pigs in 2018, China placed on the first place with 433.25 million heads, followed by the European Union with 150.11 and the United States with 73.42 (11). The number of pigs worldwide of 769.19 million heads in 2017 raises to 772.47 million heads in

2018 (12). Pork is the most consumed meat in Romania and, in the last years, demand for meat quality was emphasized (9), Romania's pork consumption rate recorded in 2015 indicating 29.1 kg per capita, being still below the European average of 40.9 kg per head. In Romania, a governmental program for stimulating the indigenous pig breeds farming is ruled up. This program is conducted throughout the governmental institutions including the Mangalica and Bazna livestock allocating to small farmers complemented with governmental financial support. The first step consisted of a livestock inventory of these breeds all over the Romania villages, for the efficient management of indigenous pig resources, showing the current limits and perspectives.

MATERIALS AND METHODS

This paper aims to analyse the swine data recorded throughout the livestock inventory carried out in Romania to draw up a global overview and new perspectives for swine breeding, improvement, and conservation at the national level.

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The present study included all the inventory data collected from each pig farm holding from the field and reported by the 41 County Animal Husbandry Offices, and next centralized by The National Agency for Animal Husbandry „Prof. dr. G. K. Constantinescu”. Two indigenous pig breeds were targeted, Mangalica and Bazna. In each of the two breeds, the inventory data referred to the number of farm holdings and also of individuals from various breed categories, such as sows, boars, female and male piglets, per holding. First, the Mangalica and Bazna farm's holdings were identified and centralized. In each farm holding data were collected and totalized for each breed category both per farm holding and at the county level, separate on each category and per total also. The reports of each Animal Husbandry Office from each county were used to generate the situation of the inventory in these two breeds at the national level.

RESULTS AND DISCUSSIONS

The Ministry of Agriculture and Rural Development, throughout its institutions and regional specific departments, and according to the current European programs for our country but also to the national own programs, aiming to inventory and stimulate some autochthon pig breeds and populations as Mangalica

Table 1
Mangalica and Bazna categories identified in 2018

Category / Breed	Mangalica	Bazna
Sows	1728	254
Female piglets	1105	179
Boars	383	48
Male piglets	2725	377

and Bazna. The National Agency for Animal Husbandry „Prof. dr. G. K. Constantinescu” is the main authority of the Ministry of Agriculture and Rural Development enrolled in genetic resources conservation and animal improvement thought reproductive and genetic tools which stand for feasible strategies and programs. The data below is showing the national inventory results carried out in 2018.

In the above inventory, 340 farm holdings targeted were comprised for Mangalica breed and 123 for Bazna breed among all of the 41 counties of our country. Accordingly among Mangalica breed, 1728 sows, 1105 female piglets, 383 boars, and 2725 male piglets were identified, meanwhile among Bazna breed 254 sows, 179 female piglets, 48 boars and 377 male piglets (Table 1).

Between the 340 Mangalica farm holdings targeted most of them were allocated in Mureş (60), Arad (40),

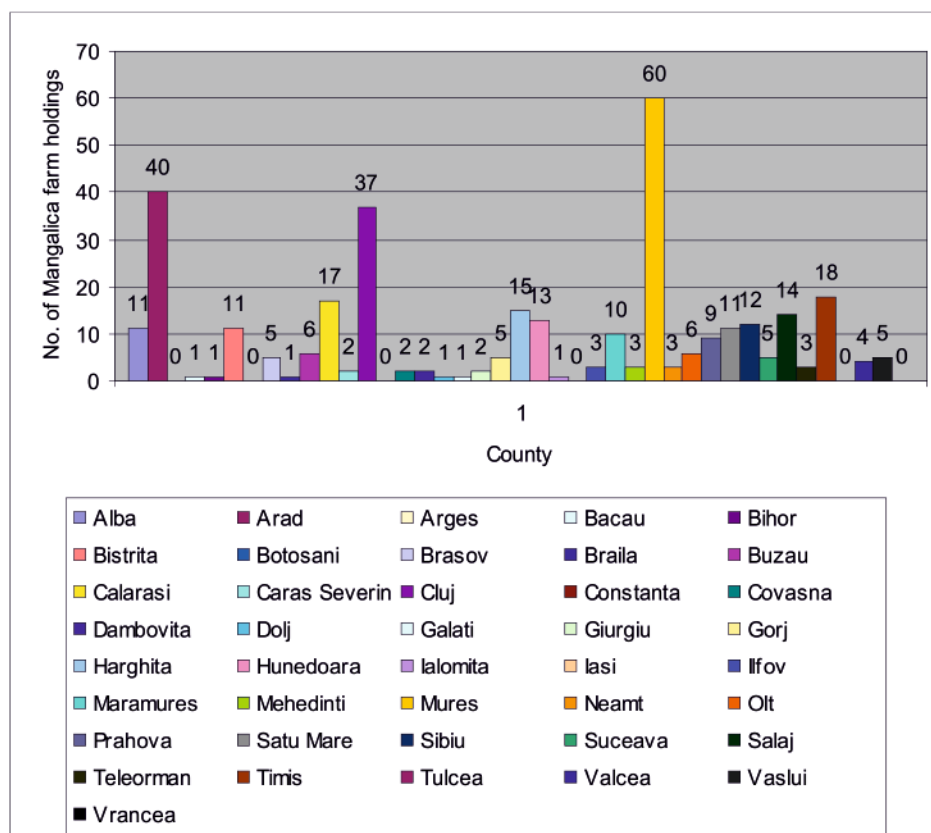


Fig. 1. Mangalica farm holdings identified in 2018 at the county level

Cluj (37), but also in Alba (11), Bistrița (11), Călărași (17), Harghita (15), Hunedoara (13), Maramureș (10), Prahova (9), Satu Mare (11), Sibiu (12), Sălaj (14), Timiș (18) (Fig. 1).

Related to the 123 Bazna farm holdings targeted most of them were allocated in Alba (35), Cluj (15), Hunedoara (25) and Sibiu (19) (Fig. 2).

These data are concerning in terms of farm animal genetic resources conservation and the small number of Mangalica and Bazna pigs are proving the governmental interest in these breeds.

Mangalica nearly disappeared in the 1970s, the number of breeding sows in Hungary between 1927-2001 showing fluctuations and an alarming decrement of individuals, but starting from 1994 required measures were adopted related animal registration, inspection, and certification of origin, leading to Mangalica individuals increment, reaching in 2001 at 1325 Mangalica breeding sows (2).

Also, some studies assessed the complementarity of Bazna and Mangalica with other pig breeds indicated satisfactory results related to slaughter indexes and meat quality, showing better values of carcass traits and the fact that the hybrids could be an alternative way to produce good quality of pork (6).

The financial support to producers in the swine breeding sector should be considered also to ensure carcass classification, using approved methods and according to the European legislation on the classification of pig carcasses and of Romania, too (1, 3).

Other references indicate important differences between the traditional and modern Mangalica breeding systems through controlled breeding and fattening, with higher body weight values in the modern breeding system (Table 2).

Gligor V. in 1969 reported differences related to the values of various body indices in Mangalica breed depending on farms and areas (Table 3).

Mangalica populations from Switzerland, Germany, Austria, the territory of the former Yugoslavia, and Romania are an important Mangalica stock in Europe (2). That requires a special interest in farming, animal improvement, and genetic conservation. According to the European Association of Animal Production, the reported Mangalica stock in Romania was 500 in 1983, 30 in 1994 and 34 in 1996, the present study aiming to address the Mangalica and Bazna pigs' data in Romania. The valuable characteristics of Mangalica and Bazna breeds, like resistance and excellent adaptability to

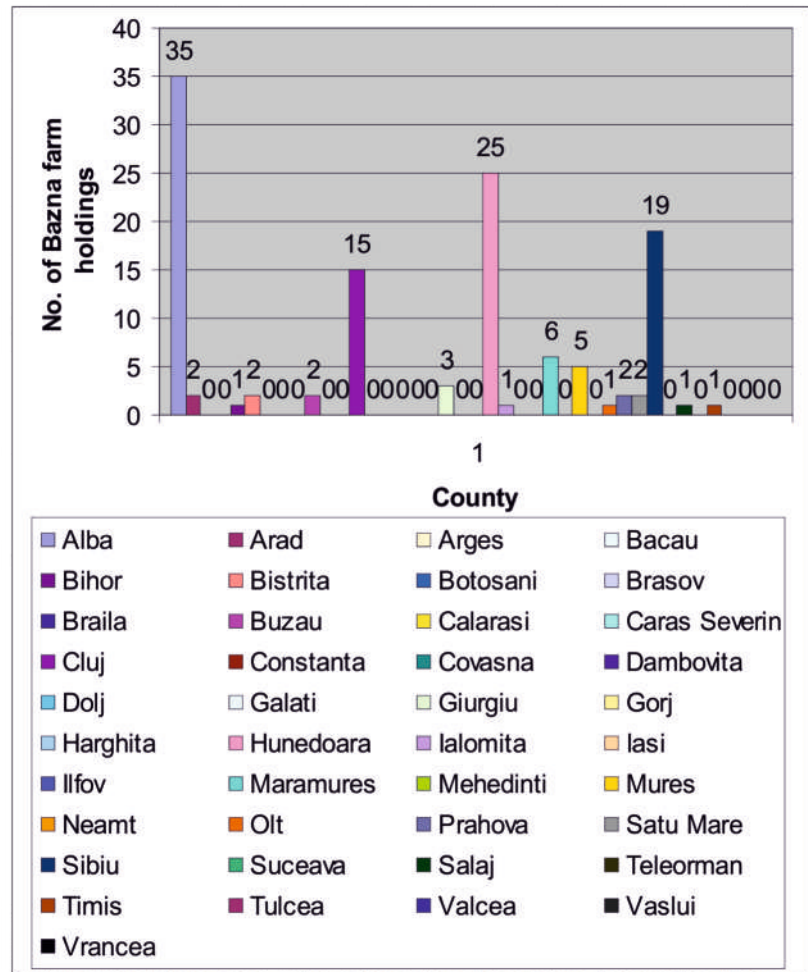


Fig. 2. Bazna farm holdings identified in 2018 at the county level

extreme housing conditions, motherliness and delicious meat taste, demand strategies to preserve biodiversity in these breeds, next to adequate farming systems for improving body indices.

CONCLUSIONS

The data showed in the present paper indicates the concern and also the interest for Mangalica and Bazna breed farming, as a valuable tool for animal improvement and conservation programs in pig resources at the national level.

The indigenous pig resources inventory stands for adequate, immediate and objective national conservation and genetic improvement programs, providing data related to the Mangalica and Bazna pig breeds in Romania.

The anew economic exploitation of the Mangalica and Bazna pig breeds and its valuable characteristics fit strategies to preserve this genetic pool.

Market demand for traditional products, especially for Mangalica and Bazna products will support to preserve these pig valuable resources.

Table 2
Intensification of Mangalica breeding in the traditional and modern system
through controlled breeding and fattening (after Cărătuș Mirela, lecture notes, 2018)

Age (days)	Time at fattening	Bodyweight		Differences
		Traditional system	Modern system	
87-94	7	19.71 ± 6.36	28.26 ± 6.21	8.55
94-101	7-14	21.33 ± 5.63	32.17 ± 4.18	10.84
101-108	14-21	24.09 ± 4.54	33.29 ± 4.04	9.20
108-115	21-28	26.53 ± 4.13	35.64 ± 4.42	9.11
115-143	28-56	34.48 ± 6.86	49.29 ± 5.95	14.81
143-171	56-84	48.68 ± 7.55	64.90 ± 6.81	16.22
171-199	84-112	60.39 ± 9.63	77.67 ± 8.45	17.28
199-227	112-140	68.92 ± 8.95	88.61 ± 8.87	19.69
227-255	140-168	78.75 ± 9.65	96.50 ± 9.03	17.75
255-283	168-196	86.40 ± 9.98		
283-311	196-224	93.04 ± 10.03		

Table 3
The main body indices of the Mangalica breed (after Gligor V., 1969)

Specification	Various farms and areas		Experimental station Slobozia	
	sows	boars	sows	boars
Wither height (cm)	68.55	73.81	76.14	81.83
Height at rump (cm)	74.95	79.00	80.22	84.84
The height of the triangle (cm)	87.78	91.64	100.78	100.00
Chest depth (cm)	41.31	45.34	44.98	46.66
Chest perimeter (cm)	114.34	123.78	137.02	151.50
Perimeter whistle (cm)	16.30	17.82	17.97	19.66
Bodyweight (kg)	113.66	132.00	169.16	195.66

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