

Bulgarian Grey Breed

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English translation by the author (andgad@alice.it)

The Bulgarian Grey (*Balgarsko sivo govedo*) is an autochthonous breed belonging to the Podolian strain, displaying great rusticity and resistance to hardship, which allow a low environmental impact breeding, with limited use of resources by the farmer.

Origin

According to local animal husbandry technicians, the breed directly derives from aurochs, the wild cattle widespread until 16th century in present-day Bulgaria, which would have been domesticated in Malashevo and Pianetz area up to Mount Osogovo and Struma river plain, in the South West of Bulgaria. The inhabitants of these areas were known to be skilled aurochs-hunters. The Bulgarian National Archaeological Institute with Museum exhibits a pottery vessel from the late Neolithic period, second half of the 6th millennium BC, found in 2012-2013 excavations in Kapitan Andreevo, in Thrace, near the border with Greece, portraying a wide-horned bull ridden by a man (or, according to others, by a woman, the Mother Goddess). Notwithstanding its nature of fictional representation rather than reality documentation, the vessel can give indications on the type of cattle living in the area at that time and their probable domesticated nature.

In the past, craniological studies hypothesized the origin of Bulgarian Grey breed from crossbreeding of long-horned grey steppe cattle of *primigenius* type (similar to aurochs) with reddish Illyrian cattle of Busha strain. These latter show a small size and short horns (*brachycerus* type), and in Bulgaria take their name from Rhodope Mountains massif (*Rodopsko kasorogo govedo*). Actually, less marked "Podolian" traits compared with other grey breeds, are shown by Bulgarian Grey, with a less elongated skull and shorter horns.

Before the advent of the cosmopolitan breeds, the Grey and the Illyrian were by far the most widespread types in Bulgaria, as in many Balkan countries. Since 1915 an activity aimed at breeds protection was started, with the establishment of the first breeders associations, and in 1929 the herd book of local grey cattle (*Sivo mestno govedo*) was put into place. However, due to the differences in the natural and economic conditions in which the selection took place and to its different levels and goals, the Grey population remained very poorly typified.

At the end of the Second World War the local breeds in Bulgaria experienced a sharp decline, due to the replacement with specialized cosmopolitan breeds or their crossbreeds. The same happened to many other native rustic breeds in the world, due to their late maturation, low productivity and limited growth. After 1961 the Bulgarian Grey was on the verge of extinction, but their conservation in public research institutes was anyway guaranteed by the State. At the end of the socialist regime, in 1990, many animals were sold or slaughtered because the end of state support made their breeding not sustainable.

At the end of twentieth century, the Grey survived only in two state-owned companies in eastern Bulgaria, KOS in Drachevo, near the town of Sredets, and Kabijuk DP Research Center in Shumen, as well as some private farms in mountain or hill areas of Central Balkans and Sashtinska Sredna Gora and of Rila-Rhodope and Strandža massifs. In 2005 only 20 cows were left.

The recovery of the breed in the third millennium is owed to the support programmes for its conservation, introduced because its traits hampered its economic viability. The protection of the breed appears particularly important because it allows a low

environmental impact sustainable breeding, in line with consumers' demand.

Two breeds or one?

Until a few years ago, many scientists distinguished two Podolian breeds in Bulgaria, Bulgarian Grey (*Balgarsko sivo govedo*) and Iskar (*Sivo iskarsko govedo*), bigger and more productive, whose name derives from Iskăr or Isker river, the longest in Bulgaria, which the Latins called *Oescus*, a tributary of Danube. The two breeds have merged and today Bulgarian Grey and Iskar are considered as synonyms. According to Professor Yanko Gorinov, one of the leading experts of the breed, the current population has intermediate traits between the two original lineages, and should be defined as Bulgarian Grey breed.

Iskar originated in the regions of Plovdiv, Haskovo, Burgas, Smoljan and Stara Zagora, in the area around rivers Iskar, Vit, Osam and Rositsa, where the availability of water provided abundant forage resources and allowed a selection for a type of dairy cattle different from the original grey cattle. Most of the studies produced in the past are descriptive and refer to Iskar variety; only recently has the research turned to the rustic breed of origins. In 1951 Mason cited Iskar as a triple purpose steppe breed, partly of brachicerous blood, originated as a flatland variety of Bulgarian Grey, while the smallest mountain variety (*Stara planina*) was extinct.

In January 2008, the Bulgarian Grey cattle were judged to no longer exist and the suspension of subsidies was announced, which were to be allotted only to Iskar cattle. The stop was withdrawn after the protest of the breeders. The stud book was established in 2008 and is held at the Institute of Animal Sciences (*Institut po Zhivotnovadin Nayki*) in Kostinbrod, in the outskirts of Sofia, by prof. Yanko Gorinov.

Influence on other breeds

The value of the Bulgarian grey is testified by its influence on the grey breeds of the surrounding countries. The *Boz Irk* (Turkish grey) derives from Iskar and is also called Pleven, from the name of the Bulgarian city from which the breeding animals came. In Romania, the Dobrogeană, a now extinct subbreed of Romanian Grey Steppe, derived from Iskar, and gave origin, by absorption crossbreeding, to the Dobrujan Red. The subbreed took its name from the area of diffusion, southern Dobruja, which today is in Bulgaria, but between 1913 and 1940 was part of Romanian territory. Even the ancient Greek Podolian, now extinct, was considered as derived from Iskar and the technicians recommended crossbreeding with Bulgarian breed to increase the size of Greek cattle.

In Bulgaria, until 1981, the breed was used as a base for the creation of beef breeds, by crossbreeding mostly with Hereford and Charolaise, or for dairy breeds, for example Bulgarian Brown (*Balgarsko kafyavo govedo*), approved and acknowledged in the years 1960s, derived from absorption crossbreeding with the Montafon selection of Brown Swiss breed. As in the other Balkan countries, the role of Simmental strain, whose breeding bulls were initially introduced for crossbreeding on the now extinct Kula local breed, is fundamental. Subsequently Serbian or Swiss Simmental bulls were used on Grey cattle in the north-western part of Bulgaria to create *Balgarsko simentalско govedo* breed.

Spread and census

The Bulgarian Grey is perfectly adapted to local climatic conditions, having a sound complexion, good working skills, high vitality and resistance to diseases, good endurance to heat and cold, wind, drought, insects and parasites.

Rearing is extensive, at stable grazing, in marginal areas, on the Strandža, Rila-Rodopi, Sakar and Central Sredna Gora massifs, on the central Balkans and in Shumen and

Varna regions. In recent years a strong diffusion in the regions of south-western Bulgaria was observed. In the valleys of the north of the country, in the regions of Danube valley, Ludogorie and Dobruja the breed is not reared.

As of December 31st, 2017, 3,294 heads were registered in the herd book, including 73 bulls and 2,937 cows and 284 heifers, in 102 farms. The search activity on herds and heads of the breed lasted fifteen years and ended in 2016. Currently no heads of the breed not registered in the herd book are reported.

Morphology

As a legacy of their past history as draft animal, Bulgarian Grey cattle have medium size, sturdy build, short and relatively lean trunk, compact and robust bone structure, strong muscles and firm tendons. Dairy traits are not very marked.

The head is relatively wide, elongated, proportionate to the body, with a straight forehead or slightly concave between the orbits, with lively, black, medium-sized eyes, small and movable ears, abundantly covered inside with hairs, coming out by few centimeters from the auricular pinna, especially in the bulls. The muzzle is black, with well-outlined nostrils and long, sparse hairs. The horns should be pitchfork-shaped (no exceptions are allowed) with grey-whitish color with black tips; in the bulls the horns are thicker, shorter and pointed laterally and forward.

The neck has medium length, and is correctly directed and well connected to the trunk, bearing a wide dewlap; in the bulls the neck is upright and suitably muscled, giving an imposing appearance to the head. The backline is straight, short and flawless, with well-connected hips, back, loins and rump, thanks to the intense exercise of the animal, grazing all year round. The chest is deep and relatively broad; in the cows it is well developed and of proper size, as well as the abdomen, suitable for the ingestion of coarse and voluminous fodder. The rump is not very wide and it clearly slopes towards the back. The tail is thin and long, ending with a thick tuft, with dark pigmentation.

A special attention has always been paid to the correct direction of the limbs, given the past of draft animal of the breed. The limbs are lean and correctly directed, with well-developed joints and lean tendons. Due to its belonging to a rustic type, this cattle have a light, fast and easy pace, and the cows are known for their characteristic fast trot gait. Claws are small and adjacent, metacarpals and metatarsals tend to be vertical.

The coat is grey, with shades from dark grey to light grey, rarely yellowish in the cows. As in many other Podolian breeds, the foretrunk is darker in the bulls. Around the eyes, and especially below them, a black spot is displayed. The skin is thick, soft and elastic, with thin and soft hair; the skin inside the ears is light yellow and oily. The pigmentation is dark and only in the areas of breast, perineum and between the front legs the color is pale yellow. As in the other Podolian breeds, the calves at birth are fawn.

Size

The size of the breed is medium, with withers height of about 129 cm for bulls and 119 cm for cows (in Iskar variety they were respectively 140 and 122 cm). The average body weight is 560 kg for bulls and 380 kg for cows, while for Iskar variety respectively 650 and 440 kg were reported. Birth weight is 23 kg for bull calves and 20 kg for cow calves.

Production traits

The Bulgarian Grey has high adaptability to harsh environmental conditions and is known for its longevity, with a 17 years long productive life. Because of the advanced age at first mating, the average age at first calving is 40 months, with fertility rates of 89%.

Most calves are born in spring, given also the prevailing seasonality of mating.

Bulgarian Grey cows have a great maternal attitude, meant as readiness and ability to protect their calf from predators and lack of *post partum* complications, thanks to the low weight of calves at birth. They naturally dry off when the calf is weaned and problems with mastitis or other mammary gland dysfunctions are not reported.

The length of lactation of Bulgarian Grey is on average 190 days, with an average yield of 975 kg and an average fat content of 4.1% with a range from 3.6 to 4.5% (for Iskar an average production per lactation of 1,900 kg was described, with a range from 1,800 to 2,000 kg and a fat content ranging from 4.2 to 4.5%).

With regards to meat, an average daily growth of 905 grams was recorded with a carcass yield of 52-55%. The meat is rather fatty and suitable for the production of sausages. In Bulgaria various cured meat products based on beef are made, including *Gornooryahovski Sudzhuk* salami, typical of the town of Gorna Orjahovica, in the Veliko Tŕrnovo region, made of pure beef, which since 2011 has obtained the registration from the European Union as Protected Geographical Indication (PGI), while *Pastarma govezhda* of pure raw beef pressed and ripened, and *Lukanka panagyurska*, a mixed sausage of beef or buffalo and pork meat are registered as Traditional Speciality Guaranteed (TSG).

Protection

The genetic improvement activity takes place in particular in the two state-owned farms, KOS of Sredets, and Kabijuk DP Research Center. Young animals to be included in the breeding cycle are evaluated twice on the basis of morphological and genealogical criteria. Heifers with high ratings are also evaluated for their size. The breeders of this cattle have been among the beneficiaries of the European Union payments under SAPARD programme (*Special accession programme for agriculture and rural development*), which until 2007 supported the adaptation of agricultural structures of Eastern European countries candidates for EU membership. The payment was 200.00 euros per cow and per pregnant heifer, and had a positive influence creating conditions to encourage reproduction.

At national level, in the frame of state aid, funding was also provided for the keeping of herd book and for basic registration of animals, to organize breeders' events, for research activity and establishment of an animal breeding structure of the population in the numerous controlled farms. In these farms actions were carried out to stop the indiscriminate use of breeders, using only purebred bulls, as the only way to preserve and stabilize the genetic heritage of the population. Semen was also collected from six bulls: in 2017 5,201 doses were cryopreserved at a public center for artificial insemination. The application of targeted research activities and genetic improvement has made it possible to stop the decline in the census of this breed and in 2012 the controlled animals increased by 42% compared to 2009.

Swiss-Bulgarian projects

During the period 2000-2006 a project funded by the Swiss Technical Cooperation was carried out to save four local Bulgarian breeds, two bovine (Bulgarian Grey and Rhodope) and two sheep breeds (Karakachan and Copper-red Shumen). Breed descriptions were established, veterinarian support was offered to the farmers, as well as mating plans, herd books were established, and the activity of federating the breeders, and promotional initiatives were started in order to raise the interest of the public and the media.

From September 2012 to September 2017 the project "*To link biodiversity protection and rural development in High Nature Value Territories by sustainable market*

mechanisms and reinforced public participation" was carried out with the support of Bulgarian and Swiss NGOs involved in Nature protection and sustainable agriculture. Among them: WWF Bulgaria, Birdlife Bulgaria BBF (Bulgarian Biodiversity Foundation), Pro Natura, Birdlife Switzerland, the Swiss association REDD (Réseau Échanges Développement Durable), Bioselena (Bulgarian Foundation of Organic Agriculture, a NGO for the promotion of organic farming), and the only institutional partner of the project, IASRJ, the Executive Agency for Selection and Reproduction in Animal Breeding (*Izpalnitelna Agentsiya po Seleksiya i Reproduktsiya v Zhivotnovadstvoto*) of the Bulgarian Ministry of Agriculture, Food and Forestry. In 2016 the project won the prestigious EU NATURA 2000 award of the EU, in the category "*Socio-Economic benefits*".

The protection of rare autochthonous breeds was included in the "sustainable rural development package"; the activities aimed at the knowledge of local breeds, especially by children, public relations actions, visits to breeds exhibitions and congresses were among the activities put into practice. The improvement of living conditions of farmers in places neighbouring to protected areas has been taken care of, also with the remuneration of the ecological services provided. The project involved all Bulgarian farm animals breeds, given that IASRJ, which oversees the management of herd books of all species in Bulgaria, was one of the project partners.

IASRJ has started the establishment of a genetics laboratory, with a systematic monitoring program of all the heads belonging to rare breeds receiving EU and state aid. Furthermore, a complete register and a digital map of all rare breeds holders have been established.

National data

In Bulgaria, according to Eurostat, 552,920 bovine heads were reared in 2017, with a basically stable census along the decade, while 35,070 heads were slaughtered with a total weight of 7,440 tons, and an average weight of 212 kgs per carcass.

Note

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Images in the printed version of the article

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pag. 122 Drachevo – bull (*top*), cow (*center*) and calf (*bottom*);

pag. 123 Map of Bulgaria with the location of the places mentioned in the text;

pag. 124 Kabijuk, Bulgarian Grey cow;

pag. 126 pottery vessel from the late Neolithic (6th millennium BC) found in excavations in Kapitan Andreevo.