



## General characteristics of rustic pig breeds (*Sus scrofa*)

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**Abstract.** The short note explains the general characteristics of rustic pig breeds (*Sus scrofa*), the advantages and consequences of farming rustic pig breeds. The conservation of the genome of domestic rustic and wild mammals will play a particularly important role both for the conservation of genetic resources and for the gene therapy of the future. Man, but also animal breeds will need ancestral genes in the future to bring resistance to genetic diseases, viral or bacterial diseases, resistance to toxins, temperatures, or heat shock. Additionally, the organoleptic properties of meat appear to have a strong genetic component. Also, cancer therapy and transplantation of tissues or organs will depend on the richness of ancestral genomes that we will be able to preserve.

**Key Words:** ancestral genes, rustic breeds conservation, swine breeds.

**Introduction.** Pork is by far the most consumed meat in both eastern and western Europe, with almost half the total meat consumption, poultry, and beef each occupying less than one quarter (Ngapo et al 2007; Proorocu et al 2021). A new and ecological concept in meat production/consumption is the slow food concept (Petrescu-Mag 2009), which includes the rustic/resilient breeds (Ilyés et al 2016). We will try in this paper to list and explain the general characteristics of rustic pig breeds (*Sus scrofa*), the advantages and consequences of farming rustic pig breeds.

**General characteristics of rustic pig breeds.** Because most are descended from ancestral pig populations (Botha et al 2014, 2016, 2020; Oroian & Petrescu-Mag 2014), i.e. wild boar, from other wild lines, or are hybrids of them, rustic breeds have a number of common characteristics, some being advantages and others disadvantages for the farmer (Petrescu-Mag & Oroian 2018). We will list these features, starting with the disadvantages and ending with the advantages.

1. The first feature of rustic breeds is obviously low productivity in terms of meat production per unit of time or feed. Specialized meat breeds have been intensively selected for meat production, so rustic breeds have lagged behind in this regard (Leenhouwers & Merks 2013).

2. Another feature of these breeds is that they have a favorable meat / fat ratio to the latter. This is explicable. If natively these animals cannot build huge muscle mass, the excess food does nothing but store itself in the layer of bacon, among the skeletal muscles, or around the internal organs, as a reserve energy (Dornea et al 2012).

3. Rustic breeds grow more slowly (Auqui et al 2019). This trait is inherited from his wild relative. In nature, when it comes to survival, selection has given priority to other body traits of the pig, more important than the growth rate.

4. Most rustic breeds are more covered with hair than specialized breeds (Botha et al 2014, 2016, 2020). In the past, abundant hair was needed for pigs to protect themselves from the cold, cuts, scratches, etc. With the domestication of pigs, because the animals were raised in shelters, man tried to reduce by artificial selection the

abundance of hair on the body to facilitate easier slaughter and preparation for consumption.

5. In the case of rustic breeds, the skeleton has a weaker meat coat than in the case of breeds specializing in meat production. The bones are more voluminous and especially the bones of the head and the front of the body (Munekata et al 2021).

6. Sequences of ancestral behavior are more common: increased aggression, protection of offspring, animals are more physically active, dig up the soil more often, are sometimes more difficult to accommodate in confined spaces, prefer semi-extensive growth and easily adapt to growing in semi-wilderness (Temple et al 2011).

7. Rustic breeds more easily capitalize on poor quality fodder and are less demanding on fodder quality (Leenhouders & Merks 2013; Temple et al 2011).

8. They have a high quality fat from a nutritional point of view (the share of unsaturated fatty acids is slightly higher) (Dornea et al 2012; Bedia et al 2012).

9. The taste of meat and fat is of superior quality. This time we are talking about the quality of meat or fat from an organoleptic point of view (Bedia et al 2012).

10. Rustic breeds rarely require preventive veterinary treatments and, with the exception of parasitic diseases, they have an increased potential for self-healing. In other words, they are more resilient (Leenhouders & Merks 2013; Temple et al 2011).

11. They have in their genome several wild genes (Petrescu-Mag & Oroian 2018), which have disappeared in specialized breeds of pigs: resistance to weather, diseases, trauma, poisoning, maternal instinct, avoidance of danger, natural reproduction not assisted by a veterinarian, light natural reproduction, etc.



Figure 1. Rustic pig (*Sus scrofa*) from Mangalica breed (photo: Bogdan Mihali).

**Conclusions.** The conservation of the genome of domestic rustic and wild mammals will play a particularly important role both for the conservation of genetic resources and for the gene therapy of the future (Mariani et al 2020). Also, animal breeds will need ancestral genes in the future to bring resistance to genetic diseases, viral or bacterial diseases, resistance to toxins, temperatures, or heat shock. Additionally, the organoleptic properties of meat appear to have a strong genetic component (Bedia et al 2012). Also, cancer therapy and transplantation of tissues or organs will depend on the richness of ancestral genomes that we will be able to preserve.

**Conflict of Interest.** The author declares no conflict of interest.

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