

APPLICATION OF QUALITY LABELS IN SUPPORT OF CONSERVATION OF LOCAL BREEDS – A CHALLENGE FOR SLOVENIAN KRŠKOPOLJE PIG

Andrej KASTELIC ¹, Marjeta ČANDEK-POTOKAR ²

ABSTRACT

Slovenia has only one preserved indigenous local pig breed, the Krškopolje pig which has a black coat colour with a white belt across shoulders and forelegs. The breed became endangered despite *in situ* gene bank implementation in the early nineties of the 20th century. At that time around 40 farms were still raising Krškopolje pig. A promotion and support for organic farming along with the subsidies for the use of Krškopolje pig increased the interest for the breed. An important milestone is also the year 2003 when individual marking of all newborn piglets was introduced. Presently there are 77 registered farms of Krškopolje pigs with about 200 breeding sows in total, 100 gilts (older than 200 days) and 48 boars. In the latest available status (August, 2013), the farms had from 1 to 13 sows with median value of 2. Only 11 (14%) farms have 5 or more sows in their herd (one farm usually has over 20 sows). Although the situation improved during the last years, the breed is far from being safe. In order to develop a sustainable use of Krškopolje pig and thus its preservation, it would be necessary to develop economically sustainable exploitation through valorisation of its products. Strengths, weaknesses, opportunities and threats are discussed under Slovenian circumstances of agricultural production.

Key words: Krškopolje pig / quality labels / breed preservation / biodiversity

1 INTRODUCTION

The social demands for food security were a driving force of genetic improvement of domestic pig towards productivity i.e. fast growth and leanness. Thus the value of local or autochthonous breeds which were adapted to lower input, but gave also lower output, was reduced and gradually their existence was threatened; some of them were even lost or are at risk of disappearance. Biotic diversity of domestic animals, which are bred for food of animal origin, is a part of biotic diversity of live organisms. European Union ratified the Convention on Biological Diversity and implemented relevant legislation (Council Regulation 94/1467/EC, 1994; Council Regulation 870/04/EC, 2004) to preserve biotic diversity in agriculture. Slovenia also implemented national legislation on preservation strategy for biodiversity, in 2004 also for

farm animals (Pravilnik ..., 2004). In the past thirty years the interest for indigenous breeds was revived. Yet, these breeds are still being largely supported by special policy mechanisms in order to ensure their preservation. The best conservation strategy is the one that makes the breed self-sustaining without the use of external subsidies (Hiemstra, 2010). To reach that level it seems important to exploit the quality attributes associated with products and better image/reputation of local breeds. Therefore the activities to increase market value of products seem to be the key strategy in support of *in situ* conservation of the breed. A sustainable exploitation of indigenous pig breeds could greatly contribute to the income of the farmers. Adequate demand for products should ensure both, sufficient population size and genetic diversity of the population. Presently, despite public interest and great efforts of the society, this condition is seldom at-

¹ Chamber of Agriculture and Forestry of Slovenia, KGZ Novo mesto Šmihelska 14, 5000 Novo mesto, e-mail: andrej.kastelic@gov.si

² Agricultural Institute of Slovenia, Hacquetova ul. 17, 1000 Ljubljana, e-mail: meta.candek-potokar@kis.si

tained and the intervention of public bodies for maintaining the animals is often considered essential by the farmers. The exception to this general trend is the case of Iberian pig, with the population exceeding 3 million and represents an example of self-sustaining local breed. As reviewed by Bozzi *et al.* (2013) in the present proceedings, there is a constant increase of general interest and research activities in local breeds, but also a clear gap between the Iberian breed and the other breeds, which is also true for Krškopolje pig in Slovenia, where great opportunities but also important decisions and hard work are still needed to reach the level when the breed would become self-sustaining.

2 EVOLUTION OF THE KRŠKOPOLJE PIG IN THE PAST AND TODAY

Slovenia has only one preserved indigenous local pig breed, the Krškopolje pig (in Slovenian, *Krškopoljski prašič*). In the old literature Krškopolje pig was also named the Blackbelted, Belted or Striped pig (Rohrman, 1899). The origin of this pig is geographically located in the region Dolenjska, called also lower Carniola in the time when Slovenia was a part of Austro-Hungarian Empire. According to the historical evidence (Rohrman, 1899) Krškopolje pig was the most popular pig breed in region Dolenjska in the 19th century. The oldest known record about Krškopolje pig dates back to the year 1899 when Rohrman described a widespread pig production in Dolenjska region, especially in the area of Krško polje (Krško is the name of the town, in Slovenian “polje” is field). Krškopolje pig has a black coat colour with a white belt across shoulders and forelegs (Fig. 1a). Denomination of the pig as Krškopolje pig came from everyday use among the farmers in the area where it was mostly populated and preserved. The same literature source (Rohrman, 1899) also provides the oldest known pic-

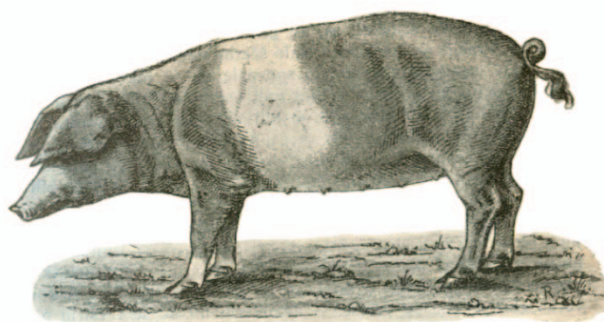


a) Krškopolje sow (photo: A. Kastelic)

ture (drawing) of this pig (Fig. 1b). According to Zalokar (1854), the military census in 1851 registered 75,200 pigs in this region. By the year 1972 last official records about the breed and fertility data were reported for Krškopolje breed before its revival in the nineties. As regards the mixture with other breeds, various historical sources tell that Krškopolje pig was mixed at some points in time with Suffolk, Berkshire, Cornwall, Wessex and Sattelschwein breed (Kastelic, 2008). Krškopolje pig was sporadically also crossed with modern breeds and with wild pigs. However, due to the large population size of Krškopolje pig in the years 1851 to 1970, the proportion of foreign genes was small. In the early nineties *in situ* gene bank of Krškopolje breed was set up. Despite that, ten years later the effective population size of Krškopolje pig remained critically endangered, and consequently a decision was taken for the refreshment with Sattelschwein (in 2003).

3 KRŠKOPOLJE PIG BECAME ENDANGERED DUE TO ECONOMIC AND POLITICAL POLICY

Historical evidence and state of the art in Krškopolje breed has been reviewed by Kastelic (2008). The breed was appreciated by farmers as the source of the fat as well as for its meat quality; however productivity was low and the breed suffered from inbreeding. It was robust, self-providing and adapted to poor feed, but reproduction traits were not good, in particular high number of stillborn piglets and higher mortality rate during suckling due to low piglet vitality; however despite that, some breeders were able to achieve comparably good reproduction results with Krškopolje pigs. After the 2nd World War, the sufficient supply of food became the imperative of the agricultural policy. State owned farms were built and given the role of the main protagonists for innovation implementation into the agricultural practice. In



b) Krškopolje pig drawing from Rohrman (1899)

Figure 1: Krškopolje sow (a) with black coat colour and typical white belt (b) Krškopolje pig drawing from the oldest written document

the pig sector state owned farms took the leading role in breeding and selection. Productive white pig breeds were imported in the fifties, later on in the eighties, also Duroc and Pietrain. Krškopolje pig was confronted not only with competition from productive modern breeds, but also with official campaign against the breed. A system of subsidies was implemented to promote productive modern lines in which the state owned farms could sell their “white” parental lines for the price of slaughter pig. Krškopolje pig was considered to be less productive and too fat and excluded from the system (support). On family farms, the owners were encouraged to use the same productive ways of farming and the legislation prohibited the use of unlicensed boars. It was prohibited to sell piglets, if the breeder did not dispose with a document of mating. In the beginning of sixties, the Commission for boar licensing gradually stopped licensing of Krškopolje boars and the last breeding stable was closed in 1970 (Kastelic, 2008). From then on it was prohibited to have the unlicensed (»black«) boars. The opinion of the farmers remains that “the tie” i.e. people who wear ties, was the executor of Krškopolje pig (Luzar, 2006).

4 REVIVAL OF KRŠKOPOLJE PIG

Despite the official campaign against Krškopolje pig, some breeders were stubborn and did not abandon its breeding. In the nineties, when the gene bank for endangered domestic animals was established, Krškopolje pig could be found on 40 farms (Švajger and Bregar, 1991). However, only three of them were willing to include their boars and sows into the preservation program, which corresponded to app. 30 sows and 3 boars. Due to the long-term lack of professional support the state of the art in Krškopolje pig was critical, there were inbreeding

problems, low fertility and high birth to weaning piglet mortality. The situation started to improve only after 2002 (Fig. 2). At that time, promotion and support for organic/ecological farming along with the subsidies for the use of Krškopolje breed increased the interest for the breed. In the year 2003 individual marking of all newborn piglets was introduced (Kastelic, 2008) which minimized the introgression of other breeds into the population of Krškopolje pig. In addition, professional and advisory support was offered to the farmers by the Chamber of agriculture and forestry.

Presently (status checked in August 2013, Fig. 3) there are 77 registered farms of Krškopolje pigs with about 200 breeding sows in total, 100 gilts (older than 200 days) and 48 boars. According to the latest available status (personal communication with breeders, August, 2013) on Krškopolje pig herd size, the farms have from 1 to 13 sows, with median value of 2. Only 11 farms (14%) have 5 or more sows in their herd, here it should be noted, that one of the farms usually has over 20 sows. For the most part rearing of pigs is a secondary and/or supplementary activity on these farms. The majority of them have either a status of organic (ecological) farm or have some form of agro-touristic activity. For farms which are involved in agro-touristic activity, Krškopolje pig is of special interest for the processing to traditional high quality products (e.g. dry-cured ham, pancetta, neck). Krškopolje pig can also be found on farms specialised in wine production with on-farm sale (wine degustation being accompanied by traditional dry-cured meat products). Besides, the interest for rearing Krškopolje pigs is also evident on farms with milk production and their own distribution and processing (yoghurt, crème, acidified milk, cheese etc.). On such farms pigs are used to “valorise” the edible left over (whey, milk and products).

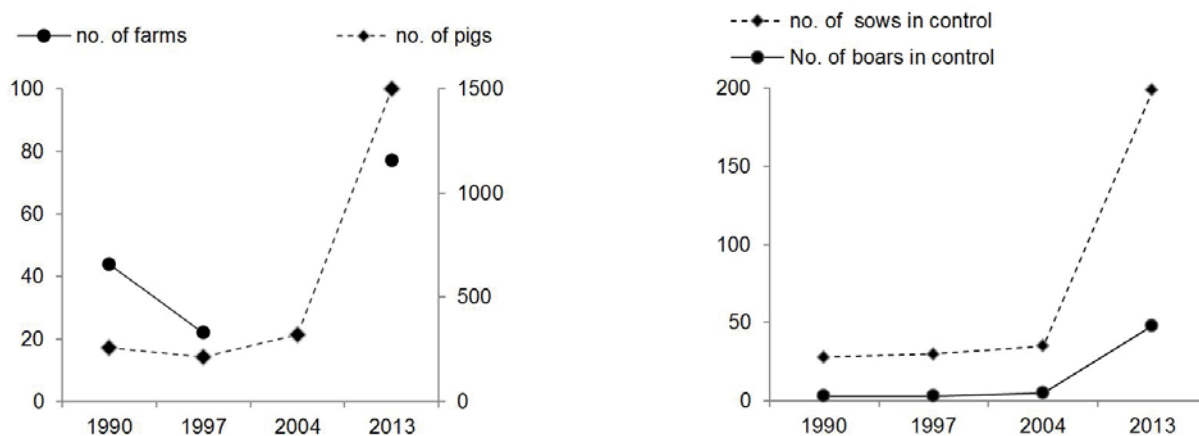


Figure 2: Development of the population size in Krškopolje breed in the years 1990–2013 – estimations based on the literature data and personal communication with breeders

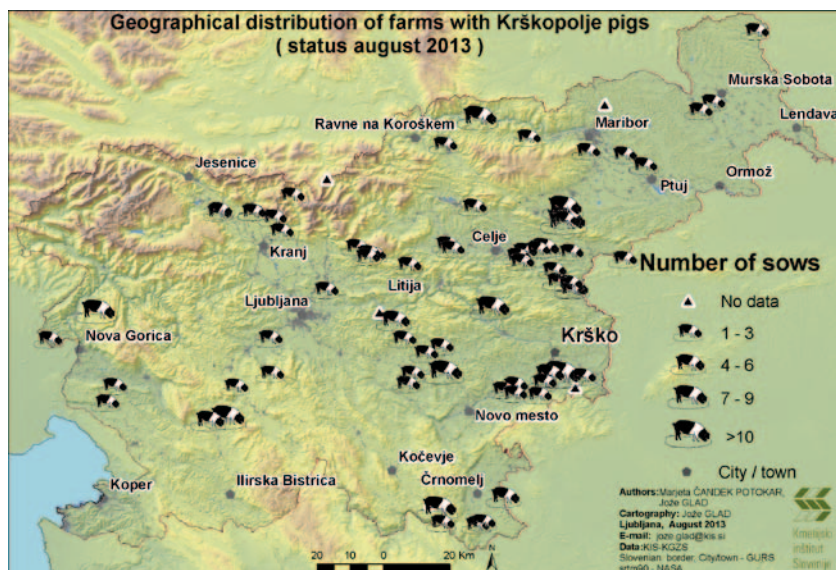


Figure 3: Geographical distribution of Krškopolje pig breeders with size of their herds i.e. number of sows

5 QUALITY SIGNS FOR PRODUCT VALORISATION IN SUPPORT OF BREED CONSERVATION

Although it seems that the situation in Krškopolje breed improved during the last years, the breed is far from being safe or even self-sustaining. In order to develop a sustainable use of Krškopolje pig, the context of general Slovenian situation in agriculture should be taken into account. Slovenia is characterized by a great diversity of climatic and geographic conditions which limit farming possibilities. Over 60% of Slovenian land is covered by forests, arable land is scarce, the relief is hilly, and the available land is structured in small parcels. The percentage of agricultural land that qualifies for status of less-favoured areas is amongst the highest in EU (74%, Cunder, 2007). The size of Slovenian households is relatively small, 6.4 ha according to last census in 2010, with grassland and pastures representing 58% of agricultural land in use (SURS, 2012a). The natural resources are limited and not in favour of intensive pig production (a problem for competitiveness of conventional pig farming). In the time of Yugoslavia the ecological problems related to big farms were not questioned and feed supply was based on grains (in particular corn) from Vojvodina in Serbia. Pig farming has reduced considerably since Slovenian independence. Estimations are that self sufficiency in pig meat has dropped in the last 10 years from app. 80% to app. 50% (SURS, 2012b). The demand for pig meat of Slovenian origin (even conventional) is high. However, in Slovenian society the general image of intensive husbandry, in particular of pigs, is low, whereas ecological,

outdoor or other types of low input farming systems are better accepted. Also, the agro-tourism is very well developed in Slovenia. In the context of such circumstances, the opportunities for a better use of Krškopolje pig seem promising and by doing so, the self sustainability of the breed would be assured. In favour to increase the use of Krškopolje pig speaks also the demand for the meat of this breed. Presently the prices on the market are double compared to the prices of conventional pig production. By increasing the production of meat from Krškopolje pig a threat of over supply exists. The risk is however minimal; firstly, Krškopolje pig is less productive and has the competition in the “home raised” pigs of modern white breeds (fattened to heavier weight); secondly, land and feed resources are limited and pig farming on larger scale is not well accepted (smell); altogether this presents limitations for the disproportionate expansion of Krškopolje breed. As demonstrated already by many successful examples in the Mediterranean area, a sustainable development of Krškopolje breed is possible through a better exploitation of its assets, being the better image and quality of the products. The question remains, how to do it? The goal is one, but different paths may lead to it. To begin with, it is important that the system of state support for autochthonous breeds and subsidies for ecological farming, which both largely contributed to the preservation of the breed, continues to be maintained. Further on, it would be worthwhile promoting the use of Krškopolje breed on agro-touristic farms. According to historical sources for Krškopolje pig, the quality of its meat has often been attributed to the diversity of feed it consumed, from root crops, pasture in the forest to the use of all edible remainings on the farm. The op-

portunity can be seen in the liberalization of milk market foreseen for 2015 (no milk quotas). Milk production is the main agricultural product in Slovenia and pig rearing could be a valuable supplementary activity and income, in particular when milk is only partly or not at all sold to the dairy or processed on farm (left over and by-products can be fed to pigs). Krškopolje pig is more robust and better adapted to outdoor rearing being therefore especially interesting for ecological farms. In Slovenia we often witness a forestation of abandoned land and excessive proliferation of undergrowth in the forests. In particular in forests of arid areas the risk of fire is increased (in particular evident in south-west carstic area where outbursts of fire are very often during the summer) and the use of pigs for pasture in such forests seems astute. Recently the association of Krškopolje pig breeders together with small-scale meat processors (local butchers) decided to register a trade mark »Meat products of Krškopolje pig«. It could be questioned, why did the protagonists not decide for quality signs of EU policy (e.g. PDO) when such products would have all the necessary assets. In the context of Slovenian circumstances, land structure and availability, the philosophy of small steps is judicious and at this point of developments their decision is sensible. Moreover, no certification is demanded with trade mark protection, which is costly. The present network of partners is not yet capable to sustain such costs. A trade mark demands much less financial input while providing protection on the market. If the developments are favourable the partners can go further and later decide also for the implementation of EU quality signs. However, as witnessed in the past 10 years of the implementation of EU quality signs in Slovenia, after the initial enthusiastic phase, in many cases the projects were not a big success and often reached a standstill before their full potential was reached. The problem seems to be that the basic rules for the success are not understood and followed. These are that the protagonists have a strong interest and clear goals, that there is a demand for such product, that product is adapted to its (niche) market and has the specific distinctive characteristics which are recognised by the consumer and that the economic return is equally distributed among all the partners in the chain. Finally, the success of the strategy depends upon the people, their enthusiasm and know-how i.e. ability to start, lead and develop the project. There are two Slovenian proverbs, one saying that "in cahoots the dog dies" and the other says "unity is strength". Unfortunately we often witness too much partial interests and individualism. Let's hope that the protagonists of the trade mark will follow the philosophy of "unity is strength", will respect the rules for the successful strategies and thus create the foundation for breed preservation.

6 ACKNOWLEDGEMENT

Financial support of the Slovenian Research Agency (grant P4-0133) is greatly acknowledged.

7 REFERENCES

- Bozzi R., Crovetto A. 2013. Conservational issues in local breeds – state of the art. *Acta Agriculturae Slovenica*, Suppl. 4: 205–209
- Council Regulation 94/1467/EC, 1994. Council Regulation (EC) No 1467/94 of 20 June 1994 on the conservation, characterization, collection and utilization of genetic resources in agriculture
- Council Regulation, 870/04/EC, 2004. COUNCIL REGULATION (EC) No 870/2004 of 24 April 2004 establishing a Community programme on the conservation, characterisation, collection and utilisation of genetic resources in agriculture and repealing Regulation (EC) No 1467/94
- Cunder T. 2007. Less favoured areas and rural development policy in Slovenia. In: *Méně příznivé oblasti pro zemědělství a venkov : sborník příspěvků z mezinárodní konference [ve dnech 7. - 10. listopadu 2007 v Jihlavě]*: collection of papers of international conference. Praha, Úzkumný ústav zemědělské ekonomiky Praha: 84–96
- Hiemstra S.J. 2010. Towards better strategies for the management of local cattle breeds. In: *Local cattle breeds in Europe*. Hiemstra S.J., de Haas Y., Maki-Tanila A., Gandini G. (eds.). Wageningen Academic Publishers, The Netherlands: 16–21
- Kastelic A. 2008. Razvoj pasme in plodnost Krškopoljskega prašiča. Master of science thesis. University of Ljubljana, Biotechnical faculty, Ljubljana, 208 p.
- Luzar M. 2006. Najprej slast, potem oblast. *Krškopoljski prašič. Dolenjski list (Priloga Dolenjske novice)*, 2, 42: 29
- Pravilnik o ohranjanju biotske raznovrstnosti v živinoreji. 2004. Uradni list Republike Slovenije, št. 90/2004. <http://www.uradni-list.si/1/objava.jsp?urlid=200490&stevilka=4111> (accessed 27. aug. 2013)
- SURS, 2012a. Popis kmetijstva 2010 – vsaka kmetija šteje! Ljubljana : Statistični urad Republike Slovenije, 2012. <http://www.stat.si/doc/pub/kmetija.pdf> (accessed 27. Aug. 2013)
- SURS, 2012b. Statistične informacije, št. 4/2012. Statistični urad Republike Slovenije, 2012. <http://www.stat.si/doc/statinf/15-si-277-1201.pdf> (accessed 27. Aug. 2013)
- Švajger G., Bregar D. 1991. Krškopoljski (črnopasasti) prašič. Diploma work. Ljubljana, Biotehniška fakulteta, VTOZD za živinorejo: 60 p.
- Zalokar J. 1854. Umno kmetovanje in gospodarstvo. Štirje deli in pristavek. Ljubljana, C.k. Kranjska kmetijska družba: 131–381