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POSTER

Productive performance of Krškopolje pig breed – Review of preliminary results

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SUMMARY

Local pig breeds are adapted to specific local environment and fed with various locally available feedstuffs. Besides their genetic merit for agro-biodiversity, they represent the basis for sustainable local pork chains. The aim of the present study was to summarize data already available in the literature on production performance of Slovenian autochthonous pig breed - Krškopolje, which is one of the local pig breeds investigated in the project TREASURE. A collection and review of available literature data on productive traits (growth, carcass and meat quality) of Krškopolje pig breed was carried out. Literature review shows that growth rate of Krškopolje pigs from birth to slaughter is in average 492 g/day (339-637 g/day; n=6). In the studies described in the literature, slaughter was performed at the average age of 293 days (230-360 days; n=9) and 118 kg live weight (90-145 kg; n=7). Reported average dressing yield was 77.3% (71.7-80.2%; n=9) and lean meat content 43.5 % (37.5-47.8%; n=7). Backfat thickness measured at the level of the last rib was in average 38 mm (28-53 mm; n=11), whereas loin eye area and loin eye fat area were in average 32.6 and 33.0 cm2, respectively (23.2-41.7; n=5 and 27.7-42.2; n=4; respectively). In the studies reporting meat quality of Krškopolje pigs, pH 24 h post-mortem in Longissimus dorsi muscle was in average 5.46 (5.28-5.60; n=7), drip loss 48 h post-mortem reached 5.1% (3.9-6.7%; n=4) and intramuscular fat content averaged 3.5% (2.7-4.6%; n=6). Although studies on Krškopolje pig are scarce, current review gives the first insight on productive performance of this local pig breed.

Performance produtiva da raça suína Krškopolje – revisão dos resultados preliminares

Palavras chave adicionais

Crescimento de raça autóctone.
Qualidade da carcaça.
Qualidade da carne.

RESUMO

As raças suínas locais estão adaptadas a ambientes locais específicos e são alimentadas com vários alimentos disponíveis localmente. Para além do seu interesse genético da óptica da agro-biodiversidade, elas representam uma base para fileiras suínas locais sustentáveis. O objetivo do presente trabalho é resumir os dados já disponíveis na literatura sobre a performance produtiva da raça autóctone Eslovena, a raça Krškopolje, que é uma das raças estudadas no âmbito do projeto TREASURE. Foi realizada uma pesquisa e revisão da literatura disponível sobre parâmetros produtivos (crescimento, qualidade de carcaça e da carne) de suínos Krškopolje. A revisão da literatura indica que o crescimento do nascimento ao abate é, em média, de 492 g/dia (339-637 g/dia, n=6). O abate é feito, em média, aos 293 dias de idade (230-360 dias; n=9) e a 118kg de peso vivo (90-145 kg; n=7). O rendimento de carcaça é, em média, de 77,3% (71,7 – 80,2%; n=9) e o teor em tecido magro de 43,5% (37,5–47,8%; n=7). A espessura da gordura dorsal medida ao nível da última costela é, em média, 38mm (28-53mm; n=11), enquanto que a área do lombo e a área da gordura do lombo são, em média, 32,6 e 33,0 cm2, respetivamente (23,2-41,7; n=5 e 27,7-42,2; n=4, respetivamente). Nos estudos que reportam a qualidade da carne de porcos Krškopolje, o pH 24h post-mortem no músculo Longissimus dorsi é, em média, 5,46 (5,28-5,60; n=7), a perda por gotejamento "drip loss" 48h post-mortem atinge 5,1% (3,9-6,7%; n=4) e o teor em gordura intramuscular é de 3,5% (2,7-4,6%; n=6). Embora havendo poucos estudos sobre o porco Krškopolje, a presente revisão dá uma primeira visão sobre a performances produtivas desta raça local.

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INTRODUCTION

Slovenia has only one preserved autochthonous local pig breed, the Krškopolje pig. In the past, this breed was appreciated by farmers because of high fat percentage and good meat quality. However, productivity of these pigs was low and the breed suffered from inbreeding. In the 1970s, when the activities were focused towards the implementation of the modern pig breeds, Krškopolje pigs became almost extinct. In the 1990s, when Slovenian gene bank for endangered domestic animals was established, the population size of Krškopolje pigs was very low, but started to improve after year 2002 (Kastelic & Čandek-Potokar 2013; p. 206). Literature data on production traits of this pig breed is not abundant, most of publications date after

Table I. Growth performance, carcass and meat quality traits of Krškopolje pigs (Performance de crescimento e parâmetros de qualidade da carcaça e da carne em suínos Krškopolje).

	No. of studies	Average	Min	Max	References
Daily gain from birth to slaughter (g/day)	6	492	339	637	1,5,7,9,13
Carcass traits					
Age at slaughter (days)	9	293	230	360	1,4,8,9,13
Weight at slaughter (kg)	7	118	90	146	3,4,5,9,13
Hot carcass weight (kg)	9	98	71	121	1,3,5,8,11,13
Carcass yield (% live weight)	9	77	72	80	2,5,8,9,10,13
Carcass length a (*atlas-os pubis;* cm)	9	101	91	107	1,5,8,10,13
Carcass length b (first rib-*os pubis*; cm)	6	85	80	90	8,13
Lean meat content (%)	7	43.5	37.5	47.8	1,8,11,13
Ham weight (kg)	7	11.3	8.8	14.1	1,3,4,5,8,13
Shoulder weight (kg)	6	6.8	5.1	7.7	1,3,5,8,1
Loin weight (kg)	6	8.8	6.3	12.7	1,3,5,8,1
Backfat thickness at level of last rib (mm)	11	38	28	53	1,2,3,5,8,10,11,13
Belly weight (kg)	3	5.5	2.6	10.2	1,8
Belly leanness (1-7)	3	3.2	2.7	3.6	1,8
Loin eye area (cm^2)	5	32.6	23.2	41.7	1,3,5,10,13
Loin eye fat area (cm^2)	4	33.0	27.3	42.2	1,3,5,13
Meat quality traits					
pH 45	6	6.03	5.82	6.49	1,4,12,13
pH 24	7	5.46	5.28	5.60	1,4,5,12,13
Subjective colour (1-6)	8	3.7	2.3	4.3	1,3,4,5,12,13
CIE L*	5	53.0	48.1	56.2	1,4,5,12,13
CIE a*	7	9.7	7.3	10.9	1,4,5,12,13
CIE b*	3	4.6	1.7	7.3	1,4,5,12,13
Drip loss after 48h (%)	4	5.1	3.9	6.7	12,13
Intramuscular fat content (%)	6	3.5	2.7	4.6	1,3,4,12,13
Marbling (1-7)	4	3.5	3.1	4.0	1,3,4,13

*13 - Unpublished data from the TREASURE project 2016

year 2000. The aim of this paper was to make an overview of the available recent data on growth performance, carcass and meat quality traits of Krškopolje breed. Preliminary results from the experiment performed within the TREASURE project were also included.

MATERIAL AND METHODS

A collection and review of available literature data on productive traits of Krškopolje pig breed was carried out. Growth performance was estimated by means of average daily gain from birth to slaughter, carcass traits by means of age and weight at slaughter, hot carcass weight, carcass yield, carcass length a and, lean meat content, ham, shoulder, and loin weight, backfat thickness at level of last rib, belly weight and leanness, loin eye and loin eye fat area, and meat quality traits by means of pH at 45 min (pH 45) and 24 hours (pH 24) after slaughter, subjective and objective colour (CIE L*, a* and b) drip loss after 48 hours, intramuscular fat content and marbling (Krhlin 1959, Gril 1965, Eiselt & Ferjan 1972, Švajger & Bregar 1991, Kastelic 2001, Kač 2002, Čandek-Potokar et al. 2003, Žemva et al. 2010, Kovač et al. 2015, Kovač & Flisar 2015, Žemva et al. 2015, TREASURE project unpublished results).

RESULTS

Basic data obtained in this review are presented in **Table I**. The information was obtained from all the available references and the studies varied widely in terms of ages and weight at slaughter, which explains the high amplitude of the values for the growth and quality of meat. In the considered studies, the age of pigs at slaughter was between 230 and 360 days; this denotes lesser intensity which is further substantiated by reported growth rates from birth to slaughter (339-637 g/day). In the considered studies pigs were slaughtered between 90 and 146 kg, *i.e.* at average live weight 118 kg and average dressing yield was 77.3% and lean meat content 43.5% (SEUROP classification). Backfat thickness at the level of the last rib ranged from 28 to 53 mm and averaged 38 mm. Compared to modern breeds, Krškopolje breed has lower muscular de-

velopment as shown by small loin eye area (23-42 cm^2). In the few studies reporting meat quality of Krškopolje pigs, pH measured in *Longissimus dorsi* muscle at 45 min and 24 h post-mortem were in average 6.03 and 5.46, respectively, intramuscular fat content averaged 3.5%, and drip loss 48 h post-mortem reached 5.1%.

CONCLUSIONS

Although studies on Krškopolje pig are very scarce, the current review gives the first insight on productive performance of this local pig breed. As for most of the local breeds its productivity is worse compared to modern ones, nevertheless, the breeders were enthusiastic and preserved it in spite of the restrictive policy. Nowadays, this breed is supported by policy mechanisms in order to ensure its preservation. Due to a relatively low population size, preservation of this breed remains the main goal, however, the future perspectives that are also highlighted in the TREASURE project are to make this breed self-sustaining being also one of the best preservation strategies.

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