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# Pig, F<sub>1</sub> (wild boar x pig) and wild boar meat quality

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**ABSTRACT:** Sixteen carcasses of wild boars, pigs, hybrids F<sub>1</sub> (wild boar x pig) and reared wild boar have been examined to study the meat quality and the fatty acid composition. Four carcasses came from hunted wild boars and twelve from animals reared in outdoor pens till nine months of age. The meat produced by the hunted wild animals, although not marketable, offers the best quality and nutritional characteristics. The use of hybrids reared in outdoor pens can approximate or equalize the hunted wild boars meat traits. Reared wild boar meat has, in the complex, better compositional characters than hybrids and domestic groups, but acidic quality of fat is not particularly useful for human feeding.

**Key words:** Wild boar, Pig, Hybrid, Meat quality.

**INTRODUCTION** – The consumers take more and more care to nutrition/health relationship; for this reason they prefer high quality and unadulterated meat characterized by high lean rate, poor in saturated fatty acids - which can increase blood cholesterol level - (Grundy 1986; Bonomore e Grundy, 1988) and rich in unsaturated fatty acids - which can reduce heart-disease risk - (Mattson and Grundy, 1985), particularly ω<sub>3</sub> - which have a role in the prevention of thrombosis and atherosclerosis - (Barsottelli and Berra, 1994). Meat quality can be improved by reducing human interference in the productive process. This can be achieved by using ecological techniques of breeding, such as the outdoor pens rearing and the use of rustic animal genotypes. In the past years the mean consume of pork is not changed in Italy with 43,93 kg/pro-capite (Uniceb, 2005); instead the meat produced from other species, because of several causes (B.S.E., Blue Tongue, Bird Flu, etc.) have drastically fallen down. For this reason the specific scientific research tends to enhance the trend, pointing the attention on the possibility of using wild genotypes reared in outdoor pens. In previous study, we studied the rearing of both pure wild boar and crossbred with domestic pig in order to investigate the effect of age (Marsico *et al.*, 1998; 2000) and feeding (Dimatteo *et al.*, 2006) on meat quanti-quality traits. Marsico *et al.* (1999; 2000) and Vicenti *et al.* (1997) also carried on several researches in this field, but in the bibliography is not available enough information on the meat characteristics of the wild animals and on their comparison with domestic pig. The present research aims to study some physical parameters, the chemical composition and the fatty acid profile of the meat produced from wild boars, pigs, F<sub>1</sub> (wild boar x pig) and wild boars reared in outdoor pens.

**MATERIAL AND METHODS** – Sixteen carcasses of male animals, 4 wild boars (WB - wild boars) hunted in the “Ambito Territoriale di Caccia B” of the Province of Matera, 4 pigs (RP – reared pigs), 4 hybrids F<sub>1</sub> (RWBP – reared wild boar x pig) and 4 reared wild boar (RWB - reared wild boars) have been considered. The animals of RP, RWBP and RWB groups had been reared, divided for genotype, in outdoor pens and fed on a feed containing maize (58.70%), oats (7.00%), barley (10.55%), soya meal (11.00%), grape skins (10.00%) and salts and integrators (2.75%) with E. M. 3,008.00 (Kcal/Kg). All the swine have been slaughtered approximately at 9 months of age. The pH values has been measured at slaughtering (pH<sub>1</sub>) and after 24 hours of storage at +4°C (pH<sub>2</sub>). Meat colour has been evaluated by the Hunter Lab system using a colorimeter (illuminant D 65), which measures the values of Lightness (L), Redness (a) and Yellowness (b). Tenderness has been measured using a Warner Bratzler shear (WBS) device applied to an Instron 5544 and expressed as the cutting force (kg/cm<sup>2</sup>). The chemical composition of *Longissimus*

*dorsi* (LD) muscle has been measured in accordance with A.S.P.A. indications (1996), and the fatty acid composition has been determined (Folch *et al.*, 1957), as extracted/methylated using a gas chromatography system. The contents of saturated fatty acids (SFA), unsaturated fatty acids (UFA), mono unsaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA) have been assayed. The atherogenicity (AI) and thrombogenicity (TI) indexes have been calculated accordingly to Ulbricht and Southgate (1991). The PCL/PCE (plasma cholesterol lowering/plasma cholesterol elevating) ratio was also determined (Reiser and Shorland, 1990). The data have been analyzed for variance and the significance between the means evaluated using Student's "t" test (SAS, 1996).

**RESULTS AND CONCLUSIONS** - Our results show that LD muscle of WB wild boars is characterised by lower (P<0.05 and/or P<0.01) lightness, higher (P<0.01 and/or P<0.05) redness and yellowness indexes, lower cutting force WBS (P<0.05 and/or P<0.01) and higher cooking loss (P<0.01). From the analysis of the chemical composition of the WB animals LD muscle it is significantly evident (P<0.01 and/or P<0.05) a lower water and fat content and a higher protein level. Moreover the fat from WB wild boars is the richer (P<0.05) of  $\omega 3$  PUFA and has the best UFA/SFA ratio (P<0.01 and/or P<0.05). Also AI and TI indexes are significantly better (P<0.05) for meat of the WB animals than meat of RP group, as well as the SFA/PUFA and the PCL/PCE ratios. The outcome of this research is the observation that the meat produced by the hunted wild animals offers the best quality and nutritional characters. The use of hybrids reared in outdoor pens can approximate or equalize the hunted wild boars meat traits. It is also important to underline that the kind of feeding of the reared animals, more than genotype, affects the dietetic-nutritional traits of meat. In fact, protein rate, fatty acid content,  $\omega 3$  level,  $\omega 6/\omega 3$  ratio and thrombogenicity index have been homogenous among the three reared groups and different of the animals grown in the wilderness. Reared wild boar meat has, in the complex, better compositional characters than hybrids and domestic groups, but acidic quality of their fat is not particularly useful. From results obtained emerge that further study are need to improve the feeding and rearing systems of the hybrid animals which have produced the more similar meat to the wild ones.

Table1. Physical parameters.

	RWB	WB	RWBP	RP	SED
L	45.92 bc	43.62 Bb	47.85 ac	50.42 Aa	2.591
a	7.26 Ba	12.39 A	6.37 B	5.28 Bb	0.968
b	10.64	11.97 a	10.23	9.61 b	1.539
pH <sub>1</sub>	6.41	6.35	6.61 A	6.04 B	0.251
pH <sub>2</sub>	5.94 A	5.48 B	5.74	5.49 B	0.193
WBS (Kg/cm <sup>2</sup> )	3.76 Aa	1.81 Bb	2.99 ac	2.29 bc	0.717
Perdita cottura	18.52 Ba	31.22 A	14.96 B	11.86 Bb	3.476

A, B: P<0.01; a, b: P<0.05.

Table 2. Chemical composition (%).

	RWB	WB	RWBP	RP	SED
Moisture	73.41 A	70.50 B	73.65 Aa	71.37 b	1.367
Protein	22.50 B	25.87 A	22.24 B	21.35 B	0.893
Fat	2.00 B	1.55 B	2.15 B	4.56 A	1.010
Ash	1.30 A	1.23 A	1.27 A	0.86 B	0.127
Undetermined	0.79 B	0.86 B	0.69 B	1.87 A	0.429

A, B: P<0.01; a, b: P<0.05.

Table 3. Fatty acids (%).

	RWB	WB	RWBP	RP	SED
SFA	38.45	35.40	38.57	39.95	2.925
MUFA	45.90	48.05	48.50	46.97	2.639
PUFA	15.65	16.55	12.93	13.08	2.643
ω6	14.35	13.73	11.65	12.05	2.033
ω3	1.30b	2.90a	1.28b	1.03b	0.886
ω6/73	11.35	4.99	9.25	12.78	6.470
UFA/SFA	1.63b	1.92Aa	1.61b	1.51B	0.180
AI	0.47	0.42 b	0.48	0.52 a	0.056
TI	1.13 a	0.84 b	1.11 a	1.17 a	0.169
SFA/PUFA	2.58	2.11 b	3.01	3.14 a	0.633
PCL/PCE	1.57	1.77 a	1.49	1.39 b	0.187

A, B:  $P < 0.01$ ; a, b:  $P < 0.05$ .

**REFERENCES - ASPA, 1996.** Metodiche per la determinazione delle caratteristiche qualitative della carne. - **Dimatteo S.**, Ragni M., Tarricone S., Melodia L., Zarilli A. and Marsico G. (2006) – Effect of the rearing system on meat quality of cross-bred F2 (wild boar x pig). 52<sup>th</sup> International Congress of Meat Science and Technology, August 13-18, Dublin, Ireland. - **UNICEB**, 2005. Eurocarni, N. 2/2005. - **Marsico G.**, Alba V., Pinto F., Tateo A., Ragni M. (2000). Performance produttive di cinghiali allevati con mangimi contenenti acidi grassi polinsaturi. XXXVI Simp. Inter. Zootecnia “Prodotti di origine animale: qualità e valorizzazione del territorio”, 196-197 - **Marsico, G.**, Lestingi, A., Caputi Jambrenghi, A., 1998. Riv. di Suinicoltura, 5:25-38 - **Marsico, G.**, Vicenti, A., Laudadio, V., Alba, V., Dimatteo, S., Caputi Jambrenghi, A., Vonghia, G., 1999. Proc. 5<sup>th</sup> Nat. Cong. “Biodiversità e sistemi ecocompatibili”. Caserta, San Leucio, 9-10 Settembre, 883-890. **Marsico, G.**, Alba, V., Pinto, F., Tateo, A., Ragni, M., 2001. Proc. 36<sup>th</sup> Simp. Intern. Zootecnia, Portonovo (AN), 27 aprile, 169-174; - **Reiser R.**, Shorland F.B. 1990. Meat fats and fatty acids. In A.M. Pearson T.R. Dutson (Ed): Meat and Health. Advances in Meat Research, 6:21-62. Elsevier Science Publishers Ltd. London; **Ulbricht T.L.V.**, Southgate D.A.T., 1991. Coronary heart disease: seven dietary factors. «Lancet», 338, 985-992; - **Vicenti, A.**, Marsico, G., Centoducati, P., Ragni, M., Tateo, A., 1997. Proc. 14<sup>th</sup> Nat. Cong. “Allevamenti di Selvaggina”, Bastia Umbra, 4-5 Aprile, 225-232; **SAS**, 1996. SAS/STAT. User’s Guide. SAS Inst. Inc. Cary. NC. USA.