Sex influence in carcass (hams and shoulders) performance of Iberian pigs fattened at montanera

León Ramírez R.C., Rodríguez-Estévez V., Díaz Gaona C., Rodríguez Sánchez M.

in

De Pedro E.J. (ed.), Cabezas A.B. (ed.).
7th International Symposium on the Mediterranean Pig

Zaragoza : CIHEAM
Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 101

2012
pages 507-510

Sex influence in carcass (hams and shoulders) performance of Iberian pigs fattened at montanera

R.C. León Ramírez, V. Rodríguez-Estévez, C. Díaz Gaona and M. Rodríguez Sánchez

Departamento de Producción Animal, Facultad de Veterinaria, Universidad de Córdoba, Campus Universitario de Rabanales, Córdoba (Spain)

Abstract. Sex factor (castrated males *vs* castrated females) has been studied in relation with montanera fattening (free-range with diet based on grass and *Quercus* acorns) and carcass performance (pieces which will be transformed by dry-curing process: hams, shoulders and loin) of 81 pure Iberian pigs (Silvela variety) with an average slaughter weigh of 167.18± 1.08 kg. The results show that males are more efficient. Results show that fresh hams and shoulders from males before and after cutting are heavier than from females (hams: before 13.80 *vs* 13.29 kg and after cutting 10.78 *vs* 10.43 kg; and shoulders: before 9.40 vs 8.88 kg and after cutting 7.19 *vs* 6.79 kg), and that, after a year of curing process, cured shoulders and hams from males are significantly heavier (cured shoulders: 5.31 *vs* 4.98 kg; cured hams 8.42 *vs* 8.19 kg). By other side dry-curing process produces a significant bigger weight loss in female shoulders (26.73 *vs* 26.14 %) and in male hams (2.41 *vs* 2.30 kg). In conclusion it is of higher interest to reserve montanera pastures to finish preferment males.

Keywords. Iberian pig – Montanera – Ham – Shoulder – Sex.

Différences de rendement selon le sexe pour la carcasse du porc Ibérique de montanera : le jambon et l'épaule

Résumé. *On étudie l'influence du facteur sexe (mâles castrés vs femelles castrées) sur le rendement de carcasses de pièces de haute gamme (jambons secs, épaules sèches et dos secs) sur 81 porcs Ibériques purs engraissés en montanera, de la souche Silvela, dont le poids moyen à l'abattage était de 167,18 ± 1,08 kg. Les résultats indiquent que les jambons et épaules frais provenant des mâles avant et après le découpage pèsent nettement plus que ceux provenant des femelles (jambons: avant le découpage 13,80 vs 13,29 kg, et après 10,78 vs 10,43 kg ; épaules : avant le découpage 9,40 vs 8,88 kg, et après 7,19 vs 6,79 kg). Nous notons la même différence significative selon le sexe à la fin d'une année de vieillissement (jambons : 8,42 vs 8,19 kg ; épaules : 5,31 vs 4,98 kg). Le pourcentage de perte de poids dans le procédé de vieillissement est supérieur chez les femelles pour les épaules (26,73 vs 26,14 %) et chez les mâles pour les jambons (2,41 vs 2,30 kg). Nous en concluons donc qu'il est plus intéressant de réserver la montanera pour engraisser les mâles.*

Mots-clés. *Porc Ibérique – Montanera – Jambon – Épaule – Sexe.*

I – Introduction

Free-range finishing of Iberian pigs based on *Quercus* acorns and grass (called *montanera*) is a strategic production of the *dehesa* (grasslands on cleared Mediterranean forest) in the southwest of the Iberian Peninsula and it is very important for the economy of this agro ecosystem. The study of diferent factors in relation with efficiency is necessary to maximize profits, preserving traditional breeding and quality products (López-Bote, 1998).

Commercial value of Iberian pigs products in markets comes from his traditional breeding system: pure Iberian breed and free-range finishing, which give to their products (hams and shoulders) a high price because their organoleptic properties which make different from others (León Crespo, 1992).

There are different factors with influence on carcass performance: breed and variety, age, feeding regime, husbandry and sex. Traditionally Iberian pigs of both sexes are castrated while these are piglets to maintain pork quality and to avoid handling problems, as attracting wild boars.

This research has been conducted to study the sex factor (castrated males vs castrated females) in relation with carcass performance (hams and shoulders) of pure Iberian pigs (Silvela variety). To avoid other factors with influence, as variety (Clemente *et al*., 2008) or pasture differences (Rodríguez-Estévez *et al*., 2009), all the animals for this experience were of the same variety and were fattened in the same *dehesa* during the same *montanera*.

II – Materials and methods

1. Animals

81 Iberian pigs (pure breed) of the Silvela variety were used (40 castrated males and 41 castrated females) Animals start montanera period with an average of 343 ± 8 days of life and a weigh of 113.5 ± 3.5 kg. All these pigs were bred under the same conditions and were finished during ≥ 60 days of *montanera*, until these gained the minimum traditional slaughter weigh of 161 kg (14 @), with an average slaugther weigh of 167.18± 1.08 kg (Table 1). At the start of *montanera* there were no statistical differences for age and weight between males and females.

During the finishing the animals grazed in a *dehesa* of Fuente Obejuna (Córdoba-Spain) and their diet was based only on *Quercus* acorns grass.

2. Measures and analysis

Both hams and shoulders from every carcass were weighed in a scale with a precision of ±5 g. Weights correspond to: (i) 24 h after slaughter before cutting; (ii) after cutting to prepare pieces for curing process; (iii) after 1 year of curing process. The results presented here correspond to mean, standard error, minimum and maximum of absolute values and percentages of the two pieces of each animal. SPPS® has been used to statistical analysis. Comparisons between males and females have been made by ANOVA.

III – Results and discussion

Males and females showed different weight gain; hence these had different slaughter weight (Table 1) (P<0.01). The results show that fresh hams and shoulders from males before and after cutting were heavier than from females (hams: before 13.80 vs 13.29 kg and after cutting 10.78 vs 10.43 kg, P<0.001, Table 2; and shoulders: before 9.40 vs 8.88 kg and after cutting 7.19 vs 6.79 kg, P<0,001, Table 3). All the same, after a year of curing process, cured hams and shoulders from males were significantly heavier (cured hams 8.42 vs 8.19 kg, P<0.001, Table 2; and cured shoulders: 5.31 vs 4.98 kg, P<0.001, Table 3). By other side, the dry-curing process gave different weight losses for females and males; so weight losses of hams were higher for males (2.41 vs 2.30 kg, P<0.05) and weight losses of shoulders were higher for females (26.73 vs 26.14 %, P<0.05).

Table 1. Body weight differences between males and females at slaughter (P < 0.01)

Animals	Animals	Mean	Standard error	Minimum	Maximum
Males	40	167.18	1.08	146.10	190.60
Females	41	159.34	1.24	146.40	197.50
Total	81	163.21	0.88	146.10	197.50

Table 2. Weights of hams according to sex

		n	Average	Standard error	Minimum	Maximum
Hams before cutting***	Males	80	13.80	0.11	11.62	16.75
	Females	82	13.29	0.12	11.25	16.85
	Total	162	13.54	0.08	11.25	16.85
% of hams about carcass weight	Males	80	20.44	0.10	18.02	22.11
	Females	82	20.53	0.09	18.63	22.42
	Total	162	20.48	0.07	18.02	22.42
Hams after cutting***	Males	80	10.78	0.09	9.00	13.10
	Females	82	10.43	0.09	8.80	13.25
	Total	162	10.60	0.07	8.80	13.25
% of cut hams about carcass weight	Males	80	15.97	0.10	13.81	17.90
	Females	82	16.12	0.10	14.20	18.16
	Total	162	16.05	0.07	13.81	18.16
Weight after 1 year of curing***	Males	80	8.42	0.08	7.05	10.35
	Females	82	8.19	0.07	6.70	10.55
	Total	162	8.30	0.05	6.70	10.55
Weight loss after 1 year of curing (kg)	Males	80	2.41	0.02	2.00	2.95
	Females	82	2.30	0.03	1.51	3.05
	Total	162	2.35	0.02	1.51	3.05
% weight loss after 1 year of curing*	Males	80	22.41	0.17	17.39	25.98
	Females	82	22.01	0.23	14.60	26.87
	Total	162	22.21	0.14	14.60	26.87

Statistical differences: * for P < 0,05; ** for P < 0,01; *** for P < 0,001.

Table 3. Weights of shoulders according to sex.

		n	Average	Standard error	Minimum	Maximum
Shoulder before cutting***	Males	80	9.40	0.09	7.43	11.42
	Females	82	8.88	0.07	7.85	11.00
	Total	162	9.13	0.06	7.43	11.42
% of shoulders about carcass weight	Males	80	13.91	0.09	12.29	15.93
	Females	82	13.73	0.08	12.38	15.72
	Total	162	13.82	0.06	12.29	15.93
Shoulder after cutting***	Males	80	7.19	0.07	5.95	9.35
	Females	82	6.79	0.07	5.75	8.75
	Total	162	6.99	0.05	5.75	9.35
% of cut shoulders about carcass weight	Males	80	10.64	0.09	9.11	12.99
	Females	82	10.50	0.08	8.96	12.69
	Total	162	10.57	0.06	8.96	12.99
Weight after 1 year of curing***	Males	80	5.31	0.06	4.35	6.90
	Females	82	4.98	0.05	4.20	6.65
	Total	162	5.14	0.04	4.20	6.90
Weight loss after 1 year of curing (kg)	Males	80	1.79	0.09	-5.05	2.45
	Females	82	1.73	0.08	-4.80	2.15
	Total	162	1.76	0.06	-5.05	2.45
% weight loss after 1 year of curing*	Males	80	26.14	0.20	21.92	29.69
	Females	82	26.73	0.18	21.71	30.27
	Total	162	26.44	0.14	21.71	30.27

Statistical differences: * for P < 0,05; ** for P < 0,01; *** for P < 0,001.

IV – Conclusions

In conclusion it is of higher interest to reserve the *montanera* (mast of acorns) preferentially to finish castrated males, because these gain more weight and have a highest carcass performance for the most valuated pieces from Iberian pig: hams and shoulders.

Acknowledgements

The authors wish to acknowledge to Turcañada S. L. and Camilo Rios S.L. their collaboration.

References

Clemente I., Membrillo A., Azor P.J., Santos E., Jiménez A.M., Molina A., Polvillo O., Juárez M., 2008. Caracterización de la diversidad genética intrarracial del cerdo Ibérico. In *ITEA*, *información técnica económica agraria*, 104 (2): 314-322.

León Crespo F., 1992. *Optimización de los parámetros de calidad del Jamón del Cerdo Ibérico El cerdo Ibérico, la naturaleza, la dehesa*. Secretaría General Técnica del MAPA.

López-Bote C., 1998. Sustained utilization of the Iberian pig breed. In *Meat Science* 49: 17-27.

Rodríguez-Estévez V., García A., Peña F. and Gómez A., 2009. Foraging of Iberian fattening pigs grazing natural pasture in the dehesa. In *Livestock Science* 120: 135-143.