



Hamburger originated from lamb meat submitted to the organic and conventional production models¹



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INTRODUCTION

- Sustainable production systems are a trend.
- Increasing of organic food consumption in the world.
- Lamb meat processing in organic model is incipient.
- Meat processing represent an important alternative to increase the profitability of the systems.

OBJECTIVES

To evaluate qualitative characteristics of hamburgers produced with lamb meat originated from organic and conventional production models.

MATERIAL AND METHODS

- The study was conducted in the Sheep Sector, of São Paulo State University, Department of Animal Science, Unesp, Jaboticabal, SP, Brazil.
- 48 Ile de France lambs were weaned and divided into two groups of 24 animals each: organic and conventional model.
- Tifton-85 pasture and rotational grazing
- Roughage: Concentrate ratio (50:50)
- Slaughter with 32 kg of body weight
- Dissection of 48 lambs Ile de France palette submitted to the organic and conventional production models were used to hamburgers elaboration, with 20 and 30% of pork fat.
- Qualitative characteristics evaluated: pH, color, water holding capacity, cooking loss, shear force and lipid oxidation.



RESULTS

Table 1. pH and color (L*, a* e b*) of the hamburgers elaborated with lamb meat originated from organic and conventional models associated to pork fat inclusion.

Production Model (M)	Parameter			
	pH	Color		
		L*	a*	b*
Organic ¹	5,93 ^a	57,99 ^a	7,24 ^b	8,81
Conventional ²	5,84 ^b	55,54 ^b	8,43 ^a	9,19
F Test	49,74**	7,04*	9,20**	1,87
P	0,0001	0,0174	0,0079	0,1900
MSD	0,0274	1,9587	0,8295	0,5978
Fat tenor (F)				
20% ³	5,86 ^b	57,36	8,06	8,72
30% ⁴	5,90 ^a	56,17	7,61	9,28
F Test	11,11**	1,66	1,32	3,86
P	0,0042	0,2157	0,2681	0,0671
MSD	0,0274	1,9587	0,8295	0,5978
F Test (M x F)	2,65	0,07	0,31	1,37
P	0,1232	0,7943	0,5835	0,2590
CV(%)	0,49	3,64	11,17	7,01

^{a,b} Inside of a same factor, followed averages for different letters in the column, differ to each other for the Tukey's Test. MSD – minimum significant difference. P - probability. CV – coefficient of variation. ¹Organic production model; ²Conventional production model; ³Inclusion of 20% of pork fat; ⁴Inclusion of 30% of pork fat.

Table 2. Water holding capacity (WHC), cooking loss (CL), shear force (SF) and 2-thiobarbituric acid reactive substances (TBARS) of the hamburgers elaborated with lamb meat originated from organic and conventional models associated to pork fat inclusion.

Production Model (M)	Parameter			
	WHC (%)	CL (%)	SF (kgf/cm ²)	TBARS (mg of malonaldehyde/1000 g of meat)
Organic ¹	62,98	24,31	0,68 ^b	1,78
Conventional ²	62,65	24,98	0,97 ^a	1,84
F Test	0,03	0,71	7,38*	0,37
P	0,8650	0,4107	0,0152	0,5532
MSD	4,0131	1,6839	0,2286	0,1890
Fat tenor (F)				
20% ³	65,02 ^a	23,91	0,83	1,80
30% ⁴	60,61 ^b	25,39	0,82	1,82
F Test	5,43*	3,50	0,01	0,03
P	0,0332	0,0796	0,9345	0,8598
MSD	4,0131	1,6839	0,2286	0,1890
F Test (M x F)	0,10	1,16	0,05	5,55*
P	0,7518	0,2977	0,8338	0,0316
CV(%)	6,74	7,20	29,32	11,01

^{a,b} Inside of a same factor, followed averages for different letters in the column, differ to each other for the Tukey's Test. MSD – minimum significant difference. P - probability. CV – coefficient of variation. ¹Organic production model; ²Conventional production model; ³Inclusion of 20% of pork fat; ⁴Inclusion of 30% of pork fat.

CONCLUSIONS

The qualitative characteristics (color, cooking loss, shear force and lipid oxidation) of the hamburgers did not suffer alterations with the inclusion of pork fat (20 and 30%), being higher pH and lower water holding capacity for 30% of fat, what suggests the adoption of inclusion of 20% of fat, with views to a healthier human diet.