

MEAT QUALITY OF CHAROLAIS AND NELORE (*Bos indicus*) CULL COWS

L. MÜLLER*, Z. V. PEROBELLI and J. RESTLE

Departamento de Zootecnia, Universidade Federal de Santa Maria, RS, Brasil. 97119 - 900

* New address: Departamento de Zootecnia, Universidade Federal de Santa Catarina, Florianópolis, SC, Brasil. 88040 - 900.

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INTRODUCTION

The quality of meat from cull cows, has received little attention from meat scientists around the world, although in many Countries comprizes about 40% of the meat offered to consumers.

In Brasil, where the work was conducted, Charolais may be considered as the main European breed, whereas Nelore can be indicated, in the Zebu breeds, as the most important for meat production.

Most of the work comparing the two types of cattle have been conducted with steers and have showed that *Bos indicus* produce less desirable carcasses than *Bos taurus*, Mariante et al. (1982), Moletta et al. (1987). Restle et al. (1990) comparing Charolais with Nelore cow, also found the some kind of results.

OBJECTIVE

To compare quality parameters of the meat of these two important breeds for Brasil.

MATERIAL AND METHODS

The work was conducted with 49 cows, 25 Charolais (C) and 24 Nelore (N), varying in age from 7 to 15 years. The animals were raised and finished in native grass. After 24 hs chill at 2 C, subjective and objective evaluations were performed. The right side was splitted between the 12 and 13 rib to expose the dorsal muscles. A portion of the loin was transported to the Meat Laboratory for sensorial determinations.

RESULTS AND DISCUSSION

Table 1, shows some data abstained from the carcasses.

TABLE 1. SOME CARCASS PARAMETERS IN CULL COWS

		Charolais		Breed		Probab.
		Mean	SD	Nelore	n = 24	
Warm carcass weight	Kg	229.50	5.47	220.80	5.59	.28
Conformation ^a		10.10	.32	8.20	.32	.01
Physiological maturity ^b		3.63	.29	3.35	.30	.51
Fat thickness	mm	1.54	.45	5.84	.46	.01
Color of lean ^c		3.42	.14	3.28	.15	.53
Texture of lean ^c		3.40	.13	3.20	.13	.33
Marbling amount ^d		4.93	.62	8.63	.64	.01

a 10 - 12 = Good 7 - 9 = Standard

b 1 - 3 E (+ 8 years old)

c Slightly dark, slightly coarse

d 4 - 6 = slight 7 - 9 = small

C cows produced carcasses with better muscle development (conformation) whilst Nelore displayed better finish (external fat and marbling). The results closely agree with the data obtained by Mariante et al. (1982), Müller et al. (1982) and Restle et al. (1990). No significant difference was observed for carcass weight, physiological maturity and color and texture of the lean.

Organoleptic evaluations of the meat are presented in table 2.

TABLE 2. MEAT QUALITY OF CULL COWS

		Charolais		Nelore		Probab.
		Mean	SD	Mean	SD	
Shear value	Kg	7.88	.42	11.61	.44	.01
Panel tenderness ^a		5.30	.24	4.07	.25	.01
Panel juiciness ^a		5.52	.16	5.20	.17	.19
Panel palatability ^a		5.20	.15	5.77	.15	.01
Thawing loss	%	5.30	.49	4.60	.52	.34
Cooking loss	%	30.05	.67	30.62	.70	.28

a 1 = inedible, extremely dry, undesirable
5 = average 9 = ext. tender, ext. juicy, ext. desirable

C cows were judged significantly more tender than N by the panel and through the Warner-Bratzler shear device. A great deal of work has been conducted showing that Zebu cattle produces tougher than *Bos taurus* breeds, Mariante et al. (1982), Müller et al. (1982) and Restle et al. (1990).

Müller et al. (1990) found that one of the factors that influences meat tenderness in *Bos indicus* cattle relies in the lower muscle fiber fragmentation index in comparison with European breeds. This is confirmed by the work of Whipple et al. (1990) who affirmed that the postmortem reduced proteolysis was associated with higher activity of calcium-dependent protease inhibitor in *Bos indicus* cattle.

Another point found in this work was that some C cows produced very tender meat (shear value from 3 to 13) whilst N were consistently tough (range from 8 to 14).

N cows were ranked with better palatability. This possibly can be explained by the higher display of finish exhibited.

No significant differences were found for juiciness and losses during thawing and cooking.

CONCLUSIONS

- Charolais cows presented better conformation and more tender meat
- Nelore cows displayed higher finish and were judged with better palatability.

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