

SENSORY ANALYSIS OF MEAT FROM PANTANEIRO FEMALE LAMBS SLAUGHTERED WITH DIFFERENT SUBCUTANEOUS THICKNESS

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Abstract – Twenty-four female lambs of the Pantaneiro genetic group were used in a completely randomized design with eight replicates, slaughtered with 2.0, 3.0 and 4.0 mm of fat thickness, which was evaluated by ultrasound on the *Longissimus lumborum* muscle to measure the effect of subcutaneous thickness on the sensory analysis. Ultrasound measurements were made (between the 12th and 13th ribs) and animals were weighed every 15 days, with slaughter occurring as the female lambs reached the pre-established fat thickness of 2.00, 3.00 and 4.00 mm. Samples of lumbar part were used for the sensory analyses, adopting a protocol for consumers. The animals slaughtered with 4.00 mm of fat thickness obtained better scores for the variables overall acceptance and taste than female lambs slaughtered with 2.00 mm. Fat thickness had no effect on sensory traits odor and succulence. The mean values obtained for odor and succulence characterize the Pantaneiro genetic group as a having meat highly appreciated by consumers. It is recommended to slaughter animals with 3.00 mm of fat in the loin, because they comprise a greater number of favorable attributes with regard to sensory analysis.

I. INTRODUCTION

There is a genetic group of sheep in the Pantanal region of Brazil in the Midwest, coming from many crossings over the years that have suffered natural selection due to climate conditions of the region, the main ancestors, animals South and Northeast [1]. These animals have the basic characteristics, the presence of wool, high hardiness, maternal ability and estrus throughout the year, which leads to increase production and consumption of lamb meat in this region.

As productivity improves and demand tool, an ultrasound may be used in creations of sheep, in order to ensure the ideal time to slaughter in a practical way, because improves the prediction of body composition or fat carcass [2]. The deposition and distribution of body fat in lambs influence the acceptability of meat.

The aim of the study was to evaluate sensory analysis of meat Pantaneiro lambs, slaughtered with different thickness of subcutaneous fat.

II. MATERIALS AND METHODS

The experiment was conducted at the University of Maringá. Twenty-four female lambs of the Pantaneiro breed group were used with approximately 100 days of age and average body weight of 16.24 ± 1.78 kg. The female lambs were fed a complete pelleted diet calculated to provide a daily weight gain of 0.30 kg with 16% CP and 76% TDN.

Ultrasound measurements were made (between the 12th and 13th ribs) and animals were weighed every 15 days. It was used an ultrasound with multifrequency linear transducer, and frequency of 7.5 MHz. The slaughter occurred when the female lambs reached the pre-established fat thickness of 2.00, 3.00 and 4.00 mm.

The female lambs were slaughtered, bled, skinned and eviscerated. After 24 hours in a cold chamber at 4°C, the chilled carcasses were sawn in half, and the *Longissimus lumborum* muscle was removed and separated into thoracic and lumbar parts, which were identified, wrapped and stored in a freezer at -18°C.

Samples of the lumbar part were used for the sensory analyses, adopting a protocol for consumers performed according Komprda *et al.* [3]. The meat samples were thawed for 24 hours at 4°C. Next, samples were cooked on a grill pre-heated to 170°C until they reached 70°C in the geometric center, which was monitored by a thermometer with digital reader. Upon reaching the pre-established temperature, samples were taken off the grill, diced, wrapped in aluminum foil and numbered. Each consumer received one sample from each treatment. To eliminate the residual taste in between samples, mineral water at room temperature and salt-free crackers were offered. Seventy consumers answered a questionnaire with an eight-point hedonic scale varying from little (1 - really disliked) and high intensity (8 - really liked). The evaluated

attributes were odor, taste, succulence and global acceptance.

III. RESULTS AND DISCUSSION

The results of sensory analysis can be seen in Table 1. Animals slaughtered with 4.00 mm fat thickness obtained better scores for taste and overall acceptability variables when compared with 2.00 mm ones, with a note 7 classified as "like moderately" and 6 "like slightly". The 3.00 mm fat thickness treatment did not differ from the others. The other sensory characteristics, odor and juiciness, were not affected for the fat thickness.

Table 1. Ratings of sensory analysis of meat from lambs slaughtered with different subcutaneous fat thicknesses.

Item	Subcutaneous fat thickness (mm)			CV%
	2,0	3,0	4,0	
Acceptability	6,73 b	7,17 ab	7,47 a	20,59
Taste	6,76 b	7,14 ab	7,49 a	22,17
Odor	6,91 a	7,17 a	7,40 a	21,58
Juiciness	7,36 a	7,57 a	7,62 a	19,47

a, b Means with different letters in a row are different ($P < 0.05$)

Regarding the profile of evaluators, most (70%) were aged 18-35 years old and only 30% aged 36-55 years old. Regarding the sex of the respondents, 58.57% were males and 41.43 females. The level of education among the evaluators was considered high, since 75.71% are college graduates, 20% had secondary education and only 4.29% had elementary education. Lamb meat in Brazil has been mostly consumed by consumers with higher purchasing power, once the lamb meat has high added value, since there is enough demand and low supply.

The evaluators were given meat sample with absence of subcutaneous fat; however the highest concentration of total lipids in muscle seems to have influenced the overall taste and acceptance. Madruga *et. al* [4] reported that the aroma and taste are directly related to the content of this fat into muscle.

The mean values measured for odor and juiciness characterize genetic group Pantaneiro as producers of highly appreciable meat by consumers when compared to other authors [5]; [6].

IV. CONCLUSION

Fat thickness does not alter the fatty acid profile in meat of lambs.

The mean values obtained for odor and succulence characterize the Pantaneiro breed group as a having meat highly appreciated by consumers.

It is recommended to slaughter animals with 3.00 mm of fat in the loin, because they comprise a greater number of favorable attributes with regard to sensory analysis.

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