STUDY ON PH VARIATION FROM MEAT OF CORRIEDALE MALE LAMBS RAISED IN THREE NUTRITIONAL SYSTEMS

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INTRODUCTION

The important relationships between pH and water retention capacity, colour, texture / tenderness of meat, lead to the fact that any factor that influence pH may have an equivalent effect on the other characteristcs (Osório et al., 1998a).

It is obvious that meat quality changes considerable with age, what corresponds to deep changes in composition and methabolic characteristics of muscles. One may say that the dropping speed of pH in meat increases with age, however, the final pH changes little, even with some tendency of lower pH at higher ages. Similarly, nutrition influences on the chemical composition of muscle, being the increasing in nutritional levels associated to higher pHs, and, in general, restrictive nutrition or its nature are not too important (Alberti et al., 1988; Sierra et al., 1988). Sañudo et al. (1996) observed higher pHs in heavier carcass groups, but pointed out that they varied within an aceptable range for meat commercialization.

The present work aims at a comparison in pH values, from meat of Corriedale male lambs raised in three different nutritional systems.

METHODS

Fifty one Corriedale non-castrated male lambs were allocated into different nutritional management, as follows: a) system 1: fourteen lambs, weaned at 70 days and grazing native pasture (mainly composed by *Paspalum notatum* Flügge and *Axonopus affinis* Chase) and slaughtered at 138 days of age; b) system 2: twenty seven lambs, weaned at 52 days and grazing winter/spring improved pasture (*Lolium multiflorum* Lam., *Trifolium repens* L. and *Lotus corniculatus*) and slaughtered 125 days of age; c) system 3: ten lambs, weaned at 60 days and receiving, in confinement, a commercial nutritional suplement and slaughtered at 110 days of age. With the carcasses stored in a forced air camera at 1°C (Osório et al., 1998b), the pH from *Longissimus dorsi* was measured at the level of 12nd and 13rd ribs by using a glass penetrating electrode, and recorded at slaughtering (pH hour zero) and after 24 hours (pH 24 hours). The pH variation (absolute and percentual values) were obtained from the difference between measurements. Analysis of variance was carried out by the Least Squares Method and the means contrasted by DMS Test (SAS, 1985).

RESULTS AND DISCUSSION

The results from analysis of variance did not show any significant difference ($P>0.05$) between systems for pH zero hour, however, there was a higly significant effect ($P<0.01$) on the pH at 24 hours and its dropping during this period (Table 1). Despite significantly different ($P<0.01$), pH values at 24 hours were lower in systems 1 and 2, which determined greater and significant ($P<0.01$) dropping in relation to system 3. Percentually, their decline were, respectively, about 4.3 and 5.7% greater than that in system 3. This may be due to nutritional levels being associated to higher pH and also due to the age of animals. Lambs in systems 1 and 2 were, on average, 28 and 15 days older than those in system 3, what may have an influence on pH dropping (Alberti et al., 1988; Sierra et al., 1988). Using the same data set to examine production of carcass in the three systems, Osório et al. (1998c) found values of 9.3, 13.6 and 10.2 kg in systems 1, 2 and 3, respectively. Once their results showed that means from systems 1 and 3 were not significantly different ($P>0.05$), it is believed that the droppings in pH found in this work did not have any important contribution from the differential in carcass weight. Sañudo et al. (1996) found that higher pH were associated to higher carcass weight, however, groups having heavier carcasses were also groups of older lambs. Similar results were reported by Osório et al. (2000) in Polwarths.

CONCLUSIONS

The nutritional regime employed in this study influenced the values of pH in meat of male lambs, after 24 hours of slaughtering, however, their values were found to be within an acceptable commercial range.

LITERATURE

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TABLE 1. Least squares means (±SE) for pH values from meat of Corriedale male lambs in three nutritional systems

pH Records	Nutritional System		
	1	2	3
pH hour zero	6,77 [a] ±0.04	6,78 [a] ±0.03	6,73 [a] ±0.04
pH 24 hours	5,47 [a] ±0.02	5,38 [b] ±0.02	5,73 [c] ±0.02
pH drop	1,30 [a] ±0.04	1,40 [a] ±0.03	1,01 [b] ±0.05
% pH drop	19,23 [a] ±0.50	20,59 [b] ±0.36	14,92 [c] ±0.60

Means followed by unequal superscript are different (P<0.01)