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Stunning and chilling methods and tenderness of lamb meat in Iceland

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Objectives

The aim of the survey was to study the influence of stunning methods, electrical stimulation, chilling practices and aging on pH and shear force of lamb meat.

Conclusions

Shear force was lowest in HBE muscles and highest in HH muscles but short times from slaughter to freezing in two abattoirs complicated the comparison of stunning methods. Electrical stimulation and aging for 1 day produced LL muscles with low shear force (30-40 N) that was unaffected by aging for 4 days.

4 hours chilling before freezing produced LL with higher shear force (50-85 N) and 4 days aging reduced shear force to the same levels as in the HBE muscles.

Introduction

There are concerns about increased risk of cold shortening of lamb meat in Iceland due to stricter demands on chilling rates and temperatures and increased slaughter per day that could exceed the chill room storage capacity for lamb carcasses. This means shorter times from slaughter to freezing. A problem that could be solved by using electrical stimulation.

Methods

Groups

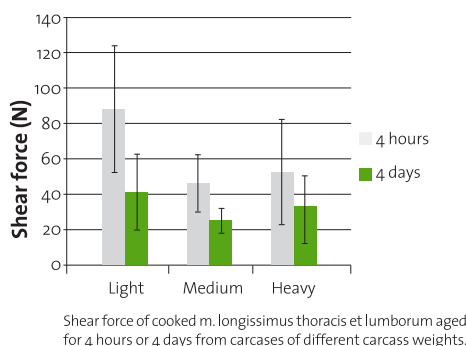
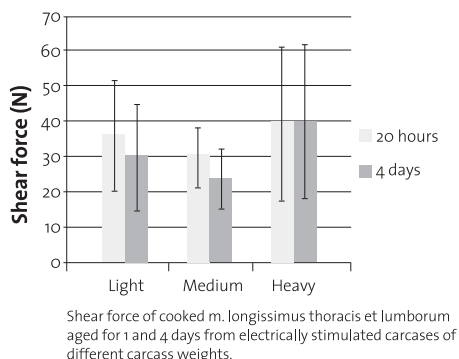
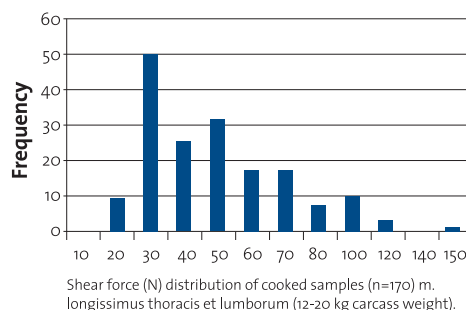
- Head only stunning (HH).
- Head to back stunning (HB).
- Head to back stunning and medium voltage electrical stimulation (HBE).

M. longissimus thoracis et lumborum (LL) was sampled from ten 15 kg carcasses in seven visits for analyzing colour and texture of unaged meat. LL muscles of ten 12-13 kg and ten > 18 kg carcasses were also sampled in two abattoirs to study the effects of 4 days aging at 4°C and carcass weight on shear force of the meat.

Results

	HH	HB	HBE	P
No of abattoirs	4	2	1	
N	40	20	10	
Chilling time, hr.	4 - 22	6 - 21	22	
pH entering chiller	7,00 ± 0,19	6,64 ± 0,15	6,46 ± 0,12	<0,001
pH after thawing	5,61 ± 0,10	5,70 ± 0,12	5,52 ± 0,0	<0,001
Shear force (N)	53,0 ± 14,3	51,0 ± 12,3	30,1 ± 6,7	<0,001

Influence of stunning methods and chilling times on pH and shear force of m. longissimus thoracis et lumborum (LL) from 15 kg Icelandic lamb carcasses.



Acknowledgement

The Sheep Farmers Association of Iceland supported the project financially.