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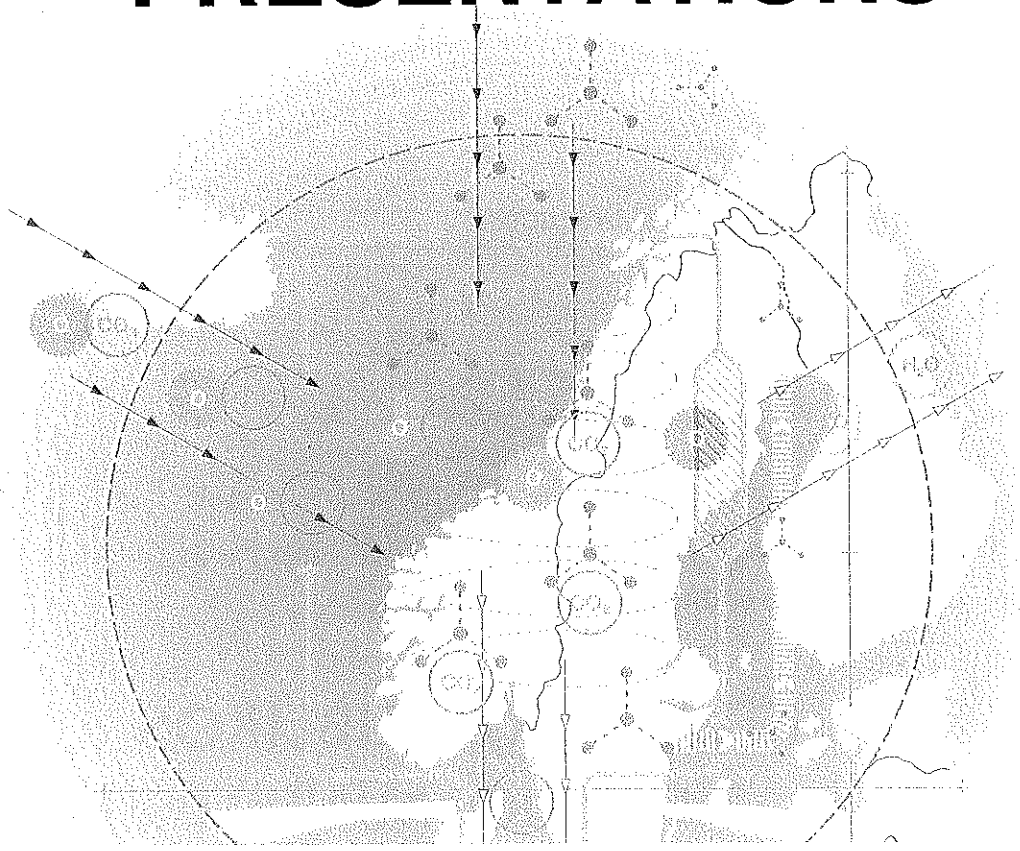

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HOW FOUR TYPICAL SWEDISH PRODUCTION SYSTEMS FOR LAMBS AFFECT SENSORY ATTRIBUTES OF THE MEAT

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The aim of this study was to evaluate the effect of the four most typical production systems for Swedish lamb on sensory attributes of meat including appearance, texture, taste and flavour using an analytical panel.

In total, 32 crossbred intact ram lambs (Dorset x Fine Wool; 75:25) were included in the study. Groups of 8 animals each were assigned to one of four production models for weaned intact male lambs. Group 1 on indoor feeding was fed a total mixed ration consisting of grass and clover silage *ad libitum* and a constant amount of 0.8 kg concentrate per lamb and day, Group 2 and 3 on cultivated pasture with or without 0.3 kg concentrate per lamb and day, respectively, and Group 4 grazed a semi-natural pasture. Further, all lambs were weighed each week. At slaughter, carcass weight, conformation and fatness as well as pH and temperature after 24 hours were recorded. After six days ageing *M. longissimus dorsi* were sampled and immediately frozen and stored at -20°C until analyses. The samples were thawed and cooked using the *sous vide* method to an internal temperature of 65.5±1.2°C. The samples were chilled overnight and then cut in 5 mm slices. Samples were held at 70°C for 10 minutes before served. Sensory analysis was performed by a trained panel with six assessors. The sensory data was analysed by two-way ANOVA, with production system as fixed and assessors as random factors. Differences were considered significant when $P<0.05$.

Regarding the sensory attribute 'resistance to cutting', Group 3 was scored lower compared to Groups 2 and 4. There were also a strong tendency ($p=0.051$) for Group 4 being scored higher than the other groups for the attribute 'hay odour'. The indication that the meat from lambs grazing semi natural pasture may be related to the lower growth rate and higher age at slaughter for this group and would be of interest to investigate further. Regardless of the differences in growth rate and final pH after 24 hours there were no differences for the sensory attributes. According to these results it could be valid to speculate about individual differences between animals rather than differences due to the different production systems. Normally, growth rate and pH value of the meat are considered as tools to predict sensory attributes, such as tenderness, in this study there were no clear relationships.

The results from this study indicate that the four different production models, covering the Swedish lamb production, did not affect ultimate pH or colour of lamb carcasses. Sensory meat attributes affected were 'hay odour' and 'resistance to cutting'. With this in mind, it seems that the different production systems, besides having an effect on production and carcass descriptors, did not influence eating quality including tenderness and flavour which are of the most important once from a consumer perspective. Furthermore, this study found that the variation between animals was higher than between the different rearing systems.

Keywords: live weight gain, pH-value, temperature, sensory attributes, texture, colour.