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Consumer acceptance of ram and wether meat in the U.S.A.

RAY A. FIELD

Ruakura Animal Research Station
Ministry of Agriculture and Fisheries, Hamilton

ABSTRACT

Paired 7-rib roasts from heavy ram and wether lambs fed pelleted diets were evaluated by 70 United States lamb consumers. Forty of the 70 lamb consumers preferred rib roasts from wethers. The 40 consumers preferring meat from wethers listed milder flavours along with more tender and juicier meat as reasons for their selection. The 30 consumers who preferred meat from ram lambs did so because the roasts were less greasy and the more intense flavour was preferred. Therefore, differences in intensity of flavour between meat from rams and wethers did exist but lamb consumers were divided on their preference for a stronger or milder flavour.

Keywords Lamb; flavour; sex; consumer acceptance; palatability

INTRODUCTION

Scientists do not always agree on the nature or extent of palatability problems associated with meat from ram lambs. Comparisons between meat from rams and meat from ewes or wethers (Rhodes, 1969; Kirton and Patterson, 1972; Wenham *et al.*, 1973; Kirton *et al.*, 1983) show that for pasture-fed sheep no important flavour problems related to sex exist. In contrast, Crouse (1983) reviewed some studies where meat from ram lambs had a more intense mutton flavour than meat from ewe or wether lambs. In most cases the differences in flavour were found in meat from heavy carcasses (30 to 40 kg) of lambs which had been fed high levels of concentrate.

The purpose of this research is to report findings of a consumer acceptance study with rib roasts from heavy ram and wether lambs fed pelleted diets that included concentrate. Findings of a consumer panel should be of value in determining if the differences reported by some specialised panels are meaningful from a consumer point of view.

MATERIALS AND METHODS

Untrimmed 7-rib roasts from 70 ram lambs and 70 wether lambs approximately 10 to 12 months of age were utilised. The lambs had been fed pelleted diets free choice from weaning at 23 kg live weight until slaughter. One half of the ram and wether lambs were slaughtered at an average weight of 63 kg (s.e. = 0.9) and the remainder 63 days later at an average weight of 76 kg (s.e. = 0.9). Details on diet and management of the lambs as well as fatty acid profiles for their subcutaneous fat have been reported by Busboom *et al.* (1981).

Carcasses were chilled at 1 to 3°C for 48 h post

mortem before rib roasts were removed and frozen at -30°C. Roasts were wrapped in white freezer paper which carried a number as the only identification. Lamb consumers were selected at random from a list of people who had purchased lamb on several occasions from the University Meat Laboratory. Participants were given 1 roast from a ram and 1 roast from a wether. They agreed to cook and serve the roasts hot out of the oven in the same manner. Roasts from rams and wethers were not compared at the same sitting but both were served within a few days of each other.

Each consumer received 1 ram and 1 wether roast from the same slaughter-weight group. Since roasts were unidentified with regard to sex, the roast that was cooked first was selected by the consumer at random. It was assumed that approximately half of the consumers scored roasts from rams first. In most cases, consumers filled out a questionnaire after consulting with the rest of the family. They were asked to choose which roast they liked best and to list reasons for their choice.

The number of consumers preferring wether roasts or ram roasts and number listing a particular palatability attribute as a reason for preference was tested by log-linear analysis and confirmed by the Fisher-Irwin 2-tailed test after pooling across weight groups.

RESULTS AND DISCUSSION

Preferences of the 70 consumers for 7-rib roasts by sex are given in Table 1. Forty of the 70 consumers preferred roasts from wether lambs and the proportion of consumers who preferred wether roasts was about the same for both slaughter weight groups. No differences in consumer replies by weight groups existed so

TABLE 1 Preferences of 70 lamb consumers for 7-rib roasts from ram and wether lambs

	Rams	Wethers
No. of roasts preferred	30	40
Reasons for preference†	%	%
Milder aroma	40	58
Intense aroma	37	15*
Milder flavour	33	58*
Intense flavour	47	28
Less greasy	60	33*
More tender	53	80*
Juicier	63	78

† Number of reasons for preference divided by number of roasts preferred $\times 100$. Lamb consumers were asked to list all the reasons for preference which applied to their choice of roasts.

the data for the 63 kg and 76 kg weight groups were pooled. A high percentage of the consumers who preferred wether roasts listed milder aroma during cooking, milder flavour, more tender meat and juicier meat as reasons. Many of those preferring the ram roasts did so because the roasts were less greasy when served. Roasts from wethers had an average of 8.6 mm fat over the *longissimus* muscle compared to 6.5 mm for roasts from rams and the difference in amount of fat could have explained the tendency for lamb consumers to score roasts from rams as less greasy. A more intense aroma during cooking and a more intense desirable flavour when served were other reasons listed by consumers who preferred roasts from rams. A typical comment of those preferring ram roasts was that the meat possessed a 'natural' lamb flavour. Some consumers went on to say that they expected lamb to taste like lamb and they objected to a milder flavour. Overall, 25 of 70 lamb consumers gave a more intense flavour as one of their reasons for preferring a particular roast. Negative comments dealt with the 'awful aroma and/or flavour' or the 'tougher' meat of roasts from rams.

It is obvious that the type of scale used to test differences in flavour of meat from rams and wethers is important because some individuals like an intense lamb flavour while others do not. Unless panel members are asked to judge degree of intensity instead of evaluating flavour in terms of like/dislike, they will score the flavour liked best the highest and differences in flavour intensity, if they exist, will be masked. Past panels that have scored flavour of ram v wether lambs in terms of like/dislike have probably accurately reflected the lack of preference of the entire population for ram

lamb meat or wether lamb meat. However, they may not have detected the difference in flavour intensity that some believe exists for lambs fed concentrate (Crouse, 1983). The comments of consumers in the present study also indicate that some palatability differences between ram and wether meat are present.

Evidence that some lamb consumers prefer a stronger flavour and aroma while others prefer a milder flavour and aroma is useful. When cuts from heavy ram lambs fed concentrate are sold at retail it may be good merchandising practice to separate cuts from rams and advertise that they possess a more intense natural flavour than other lamb. This might be feasible in markets where a more intense flavour is preferred and it could increase the number of satisfied lamb consumers because those preferring intense flavour would purchase cuts from ram lambs while those preferring mild aroma and flavour would purchase cuts from wether or ewe lambs. Overall, differences in flavour and aroma of meat from concentrate fed, heavy rams and wethers do tend to exist, but lamb consumers are divided on their preference for stronger or milder flavour or aroma.

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