

CAN INFORMATION INFLUENCE THE VALUE AND QUALITY PERCEPTION OF BEEF?

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Abstract – The impact of information on the value perception of beef was evaluated by 202 consumers using a structured close-ended questionnaire. Steaks were prepared from very tender beef *psaos major* (kgf < 4.2, sample A) and tough beef *m. Semimembranosus* (kgf > 15, sample B) and were used in the study. Each consumer evaluated barbecued samples A and B, followed by information discussion on iron content in the samples and suitable cooking options, then the consumers evaluated another set of sample B prepared as slow cooked stew. The consumers were asked to rate the tenderness, overall acceptability of the meat, and whether they were willing to purchase the sample and how much they would pay for 1 kg of the sample in each tasting. A 72.2% of the consumers rated barbecued sample A as moderately tender-very tender and 85% of the consumers rated it as like moderately-like strongly. About 85% of the consumers were willing to purchase sample A and only 21% of those were willing to pay 17-23 NZ\$/kg. Half of the consumers (50.8%) were willing to purchase sample B and 88% and 12% of those were willing to pay <13 and >13 NZ\$/kg, respectively. After information and tasting the slow cooked sample B, 79.8% of consumers were willing to purchase sample B and 82.4% and 17.6% were willing to pay <13 and >13 NZ\$/kg, respectively. On average, an increase of \$3/kg was achieved for sample B after the information session.

Key Words – Beef, tenderness, purchase, information.

I. INTRODUCTION

Consumers' perception of meat quality is dictated by a large array of intrinsic (e.g. sensory quality cues) and extrinsic (credence quality cues such as price, origin, brand, information on production) factors [1]. Different meat cuts from different anatomical locations on the carcass are inherently varies in their tenderness and consumers and retailers associate the differences in tenderness with price and cooking methods for different meat cuts. Tradeoffs between hedonic and utilitarian attributes of meat are often used by consumers

during purchase decision-making [2]. As mentioned above, the meat industry and consumers place various monetary values on different meat cuts, with tenderness being viewed as an important factor in determining the meat value [3]. Meat tenderness is mainly dictated by the composition and types of structural proteins which require different heating conditions to denature, therefore different meat cuts require different cooking methods.

It is well established that consumers are willing to pay more for meat that has a guaranteed tenderness [3]. However, it less known whether information on appropriate cooking methods and nutrition of meat cuts would influence the consumer perception of meat value. The aim of this study was to investigate the effects of nutrition and appropriate cooking information on consumers' perception of the quality and monetary value of beef.

II. MATERIALS AND METHODS

Beef *Psoas major* muscles (tenderloins, sample A) were obtained from prime steers (≤ 2 years old) and were aged for six weeks to achieve shear force of < 4.2 kgf and *m. Semimembranosus* (top round, sample B) were obtained from Alliance Group Ltd (Pukeuri Plant, Oamaru) at 24 h postmortem from dairy cows (> 5 years old). The top round had a shear force of > 15 kgf. Steaks (about 2.5 cm each) were prepared from the tenderloins and top rounds and were tasted by consumers as grilled (both cuts) or as slow cooked (top rounds only). A structured close-ended short survey was completed by consumers agreed to participate in the survey (n = 202). The participants were initially asked to disclose basic demographic information (gender, age), frequency of eating meat (> once a week, once a week or < once a week), the type of meat consumed most (beef, lamb, pork, poultry, other or no preference) and the reasons for their choice (taste, price, versatility, health, tenderness or other). The participants were then asked to

evaluate the grilled samples (tenderness and overall acceptability), to state whether they were willing to purchase the sample and how much they would pay for 1 kg of the sample.

The survey was repeated using the slow cooked top round samples only after discussion on iron content in the samples and suitable cooking options using printed information from USDA [4] and beef+lamb New Zealand [5].

Data Analysis. The results were expressed as percentage of the total number of consumers.

III. RESULTS AND DISCUSSION

The profile of the consumers' attributes is shown in table 1. About 80% of consumers consumed meat more than once a week. Beef was the most consumed type of meat (39.2%) followed by poultry (32.4%) which is similar to results obtained in a 1997 survey [6]. Taste and price were the main reasons given for the choice of preferred meat (28.2% and 24.1%, respectively) while 8.5% of the consumers stated tenderness as the main reason for their choice of meat. While the importance of taste and price has been widely reported, the consumers in the present study under estimated the importance of tenderness compared to previous studies [7, 8].

A possible reason for this change might be that consumers had been offered tender meat through the implementation of restrict quality programs such as QualMark in New Zealand (established in 1998), which guarantee the meat tenderness, and consequently tenderness became a less apparent issue for consumers.

The majority of the consumers (72.2%) rated barbecued tenderloin (sample A) as moderately tender-very tender while 10.4% of the consumers rated barbecued top round samples (sample B) as moderately tender-very tender (Figure 1A). About 85% of the consumers rated sample A as like moderately-like strongly while only 32% of the consumers rated sample B as like moderately-like strongly (Figure 1B).

Table 1 Composition of materials used for salami preparation

Variable		No. of Consumers	%
Gender	<i>Female</i>	121	59
	<i>Male</i>	81	41
Age	<i><18</i>	28	13.9
	<i>19-25</i>	32	15.8
	<i>25-30</i>	19	9.4
	<i>30-50</i>	71	35.1
	<i>>50</i>	27	13.4
	<i>Not declared</i>	25	12.4
Frequency of Eating Meat	<i>>once a week</i>	161	79.7
	<i>Once a week</i>	21	10.4
	<i><once a week</i>	20	9.9
Type of Meat consumed most	<i>Beef</i>	109	39.2
	<i>Poultry</i>	90	32.4
	<i>Lamb</i>	34	12.2
	<i>Pork</i>	32	11.5
	<i>Other</i>	7	2.5
	<i>No preference</i>	6	2.2
Reason	<i>Taste</i>	96	28.2
	<i>Price</i>	82	24.1
	<i>Versatile to cook</i>	67	19.7
	<i>Healthy</i>	55	16.1
	<i>Tenderness</i>	29	8.5
	<i>Other</i>	12	3.5

About 85% of the consumers were willing to purchase sample A and only 21% of those were willing to pay 17-23 NZ\$/kg. About a half (50.8%) of the consumers were willing to purchase sample B and 88% and 12% of these consumers were willing to pay <13 and >13 NZ\$/kg, respectively for that sample. After providing information and tasting the slow cooked sample B, the percentage of consumers were willing to purchase sample B was increased to 79.8% (57.6% increase from that found with the barbecued sample) and 82.4% and 17.6% were willing to pay <13 and >13 NZ\$/kg, respectively (Figure 2). On average, an increase of \$3/kg was achieved for sample B after the information session.

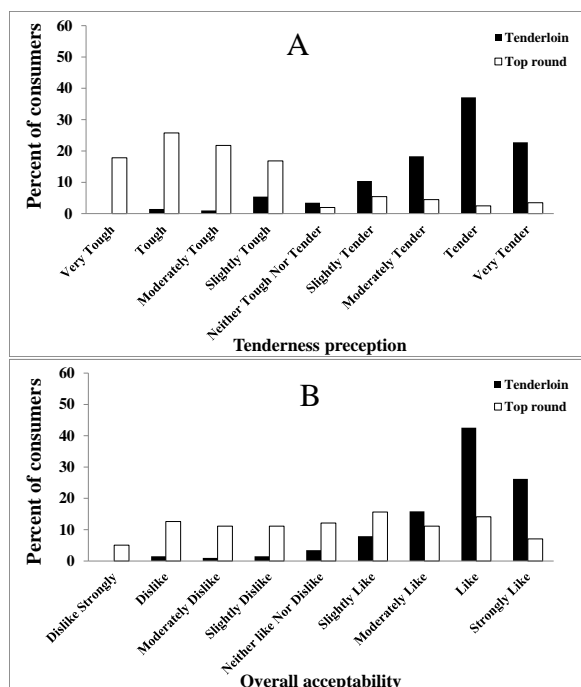


Figure 1. Consumers' perception of the tenderness (A) and overall acceptability (B) of grilled tenderloin and top round steaks (n= 202).

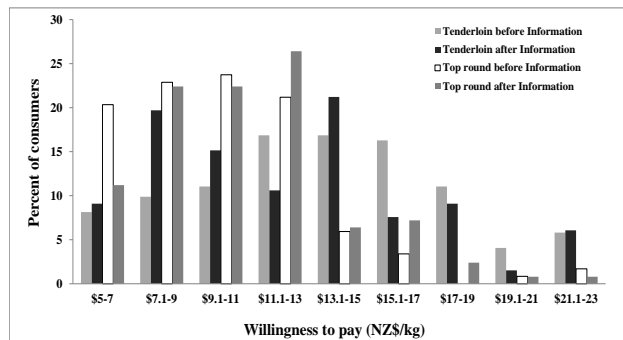


Figure 2. Distribution of consumers' willingness to pay (NZ\$/kg) for tenderloin and top round steaks before and after providing information on iron content and suitable cooking options (n= 202).

In particular, information on appropriate cooking methods and iron content of beef top round (top round has higher iron content than tenderloin) increased the perceived tenderness and overall acceptability ratings by 8- and 2-folds, respectively (Figure 3).

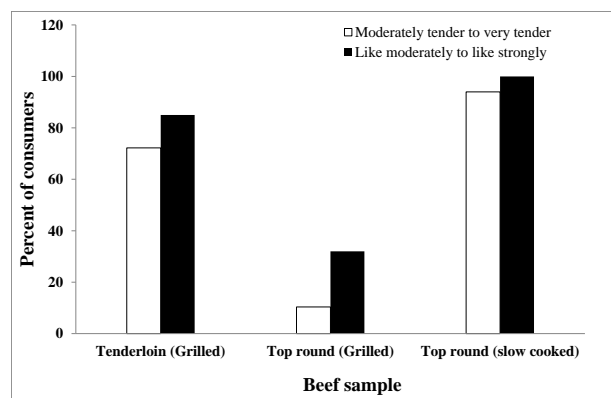


Figure 3. Consumers' perception of the tenderness and likeness of tenderloin (grilled) and top round (grilled and slow cooked) steaks (n= 202).

Providing information also affected the value of the tenderloin samples (Figure 2). The percentage of consumers willing pay high price for tenderloin was decreased with only 45.4% of the consumers were willing to pay > 13 NZ\$/kg. Information can be a very effective marketing tool. For example, health information on meat was reported to be more important than price in determining meat consumption in the US [9]. Clearly, a positive perception of the value of top round was achieved. However the number of consumers willing to pay > NZ\$ 15/kg for tenderloin (an already established high value cut) was dropped by a third (from 37.2% to 24.2%) when the information was presented.

IV. CONCLUSION

Information can improve the acceptability and the value of "low value" meat cuts. However, two-sided comparison (low value vs high value) can negatively affect already established high value products.

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