

CONSUMER ACCEPTABILITY OF BEEF IN REGIONS OF THE BRITISH ISLES?

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I. INTRODUCTION

Republic of Ireland (ROI) and Northern Ireland (NI) supply beef to both the home market and to Great Britain (GB). A previous study has shown differences in consumer overall liking scores between four cities in the United States [1]. Consequently, beef producers are keen to identify if there are regional differences between consumers from NI, ROI and GB, to market their products more effectively.

The Meat Standards Australia (MSA) grading system has been developed to predict beef eating quality based on large scale consumer data [2] and internationally recognized protocols have been developed to conduct these consumer panels. This paper reports the results of an investigation of how regions and socio-demographic factors influence consumer liking of beef.

II. MATERIALS AND METHODS

Consumer panels were conducted in Belfast (NI), Cork (ROI) and Reading (GB), with 120 consumers from each location. They assessed the same beef striploins samples for tenderness (TE), juiciness (JU), flavor liking (FL), overall liking (OL) on a line-scale and assigned a satisfaction grade, using a version of the MSA protocol for well-done steak [3]. A MQ4 score was calculated using sample using the Australian MSA equation: $0.3 TE + 0.1 JU + 0.3 FL + 0.3 OL$. The results were analysed using chi-square test and REML analysis (GenStat) to identify the distribution of consumers and significance differences in sensory scores.

III. RESULTS AND DISCUSSION

Consumers in NI, ROI and GB gave similar mean scores for beef and used the line-scales similarly [3]. There were no region*treatment interactions but significant differences were identified between regions for consumer sensory scores (Figure 1), including tenderness ($P < 0.001$), juiciness ($P < 0.01$), flavour liking ($P < 0.05$), overall liking ($P < 0.05$) and MQ4 score ($P < 0.01$). Higher scores for tenderness (6 points on a 100 point line scale) and juiciness from GB consumers appear to explain the higher score for overall liking.

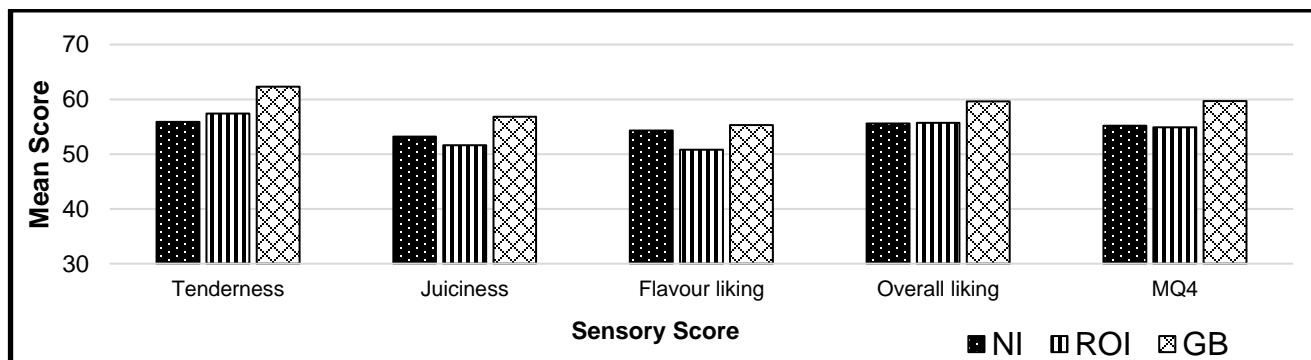


Figure 1. Mean sensory scores for Northern Ireland (NI), Republic of Ireland (ROI) and Great Britain (GB).

Socio-demographic factors were investigated. Factors such as age, gender, occupation, income level, beef appreciation and preferred degree of doneness had no effects. The relationship between satisfaction scores

and the MQ4 score was the same for all regions [3]. Interestingly, the chi-squared test indicated that there were significant differences ($P < 0.01$) in how important were the statements, “it’s a healthy choice” and “I know where it comes from” for consumers’ beef choice. GB consumers were less concerned about these factors than those from NI and ROI (Figure 2). Significantly higher consumption frequencies of rump ($P < 0.001$) and topside ($P < 0.01$) were reported by GB consumers compared to NI and ROI (Figure 3). A European study stated that 25% of grilled rump and 53% of roasted topside are graded as unsatisfactory [4]. It is possible, therefore, that these GB consumers tend to consume lower quality beef, which might explain why they gave higher scores than people from ROI and NI when they tasted striploin steaks.

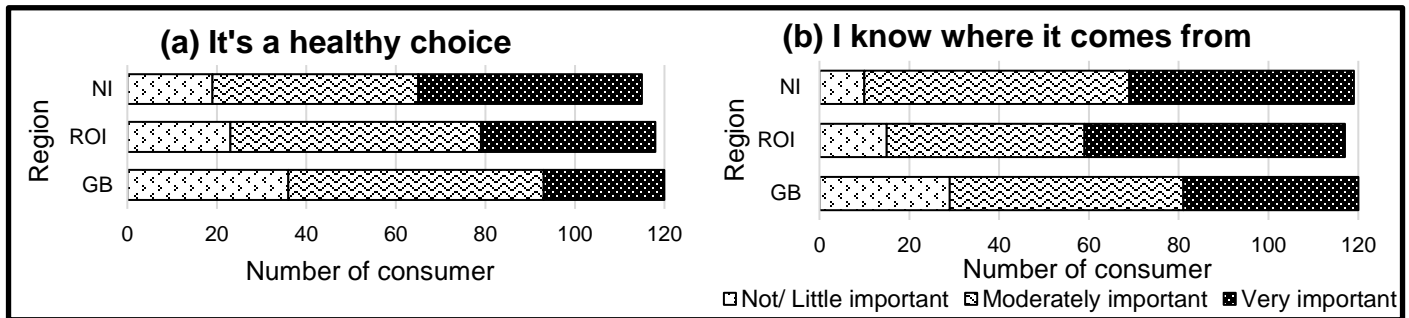


Figure 2 Importance of (a) it’s a healthy choice and (b) I know where it comes from as motivators for beef choice.

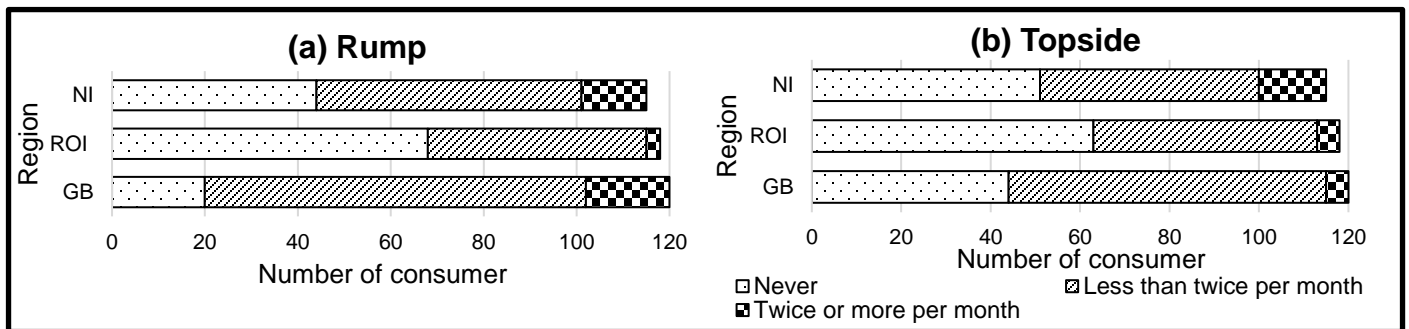


Figure 3 Consumption frequencies of (a) rump and (b) topside reported by consumers from Northern Ireland (NI), Republic of Ireland (ROI) and Great Britain (GB).

IV. CONCLUSION

There was no difference in which samples received the highest scores, indicating that the same characteristics were liked by consumers from all regions. However, region had significant impact on consumer sensory scores, with GB consumers scoring higher for the same beef. Socio-demographic evidence suggests that this cannot be explained by age, gender, occupation, income or beef preferences, but may due to the past experience of beef by consumers.

REFERENCES

1. Neely, T. R., C. L. Lorenzen, R. K. Miller, J. D. Tatum, J. W. Wise, J. F. Taylor, M. J. Buyck, J. O. Reagan and J. W. Savell (1999). Beef customer satisfaction: cooking method and degree of doneness effects on the top round steak. *Journal of Anim Science* 77(3): 653-660.
2. Polkinghorne, R., J. M. Thompson, R. Watson, A. Gee and M. Porter (2008). Evolution of the Meat Standards Australia (MSA) beef grading system. *Australian Journal of Experimental Agriculture* 48(11): 1351-1359.
3. Chong, F. S., L. J. Farmer, A. W. Gordon, T. D. J. Hagan, J. P. Kerry, L. Methven, A. P. Moloney, D. W. Sanderson and M. G. O’Sullivan (2018). Comparison of Consumer Acceptability of Beef in Northern Ireland, Republic of Ireland and Great Britain. [Manuscript in preparation]
4. Farmer, L. J., R. Bowe, D. J. Troy, S. Bonny, J. Birnie, V. Dell’Orto, R. J. Polkinghorne, J. Wierzbicki, K. de Roest, N. D. Scollan, M. Henchion, S. J. Morrison, I. Legrand, R. Roehe, J. F. Hocquette and K. Duhem (2016). Compte-rendu du congrès intitulé “Qualité durable de la viande bovine en Europe, [Report of the workshop “Sustainable beef quality for Europe – A workshop for industry and scientists”], *Viandes & Produits Carnés*, VPC-2016-32-1-6.