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# CONSUMER EXPECTATIONS AND SATISFACTION FOR BEEF IN THE FRENCH REGION AUVERGNE-RHÔNE-ALPES

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## I. INTRODUCTION

In France, beef consumption has been in steady decline for many years [1], from 25.8 to 22.3 kg/capita/year between 2010 and 2023 (-1.1% per year) [2], although it remains the third most consumed meat in France after pork and chicken [2]. The reasons are multifactorial [3] and linked to (**i**) the controversial image of beef (its environmental impact, the competition between feed and food, respect for animal welfare), (**ii**) the change in consumption patterns (reduction in the daily time devoted to cooking and eating), (**iii**) its high price and, finally, (**iv**) its variable sensory quality [4]. Thus, consumers are not always satisfied with the organoleptic quality of beef [5]. In this context, the scientific project OABov-AURA (2022-2025) was carried out to better identify consumer expectations in the French region of Auvergne-Rhône-Alpes (AURA). This region is the second largest in terms of beef cattle in France (after Nouvelle-Aquitaine), with a strong consumer base offering marketing opportunities for regional production. Therefore, **the aim of this study is to better identify:** (i) **consumer expectations** regarding the intrinsic and extrinsic qualities of beef and (ii) consumer preferences for raw and cooked beef.

## II. MATERIALS AND METHODS

The online survey was formatted using LimeSurvey. Before distributing the survey, project partners pre-tested the questionnaire to identify any errors or incomplete responses. The survey was then disseminated to AURA residents online at various periods between April 15, 2022, and December 11, 2023. The responses were analyzed using R software.

Sensory analysis tests were conducted with consumer panels to evaluate satisfaction levels regarding both raw and cooked beef. The study compared two distinct cuts -sirloin steak and premium beefsteak- across three animal categories: cull cows, young bulls, and heifers, all sourced from beef breeds. A diverse selection of 120 steaks, obtained from regional supply chains, was assessed. The study was carried out in two major urban areas of the region (Lyon and Clermont-Ferrand), with 120 consumers per city (480 in total).

## III. RESULTS AND DISCUSSION

The online survey involved 740 respondents, mostly female (62%), young (46% < 40 years of age vs 31% > 50 years of age), students (26%) and executives (33%), with a good knowledge of farming (51%), and preferring to buy beef in butcher shops (28%).

Of those surveyed, 51% reported having reduced their meat consumption in recent years (compared to 43% who reported no change). The two main reasons for the decline in beef consumption were explained by health (24% of responses) and ethics (25%) issues.

The majority of consumers (56%) said that eating beef for pleasure was their primary motivation, and are not disappointed with raw (82%) or cooked (51%) beef.

Origin (44%), proximity (37%) and the presence of signs of quality and origin (SIQO) (33%) were the most important extrinsic criteria (% of respondents who selected the answer: “very important”) (Figure 1-A). However, taste (63%), tenderness (60%) and freshness (58%) were the most important intrinsic criteria of beef for the respondents (Figure 1-B). Consumers also prefer meat that is bright red (73%).

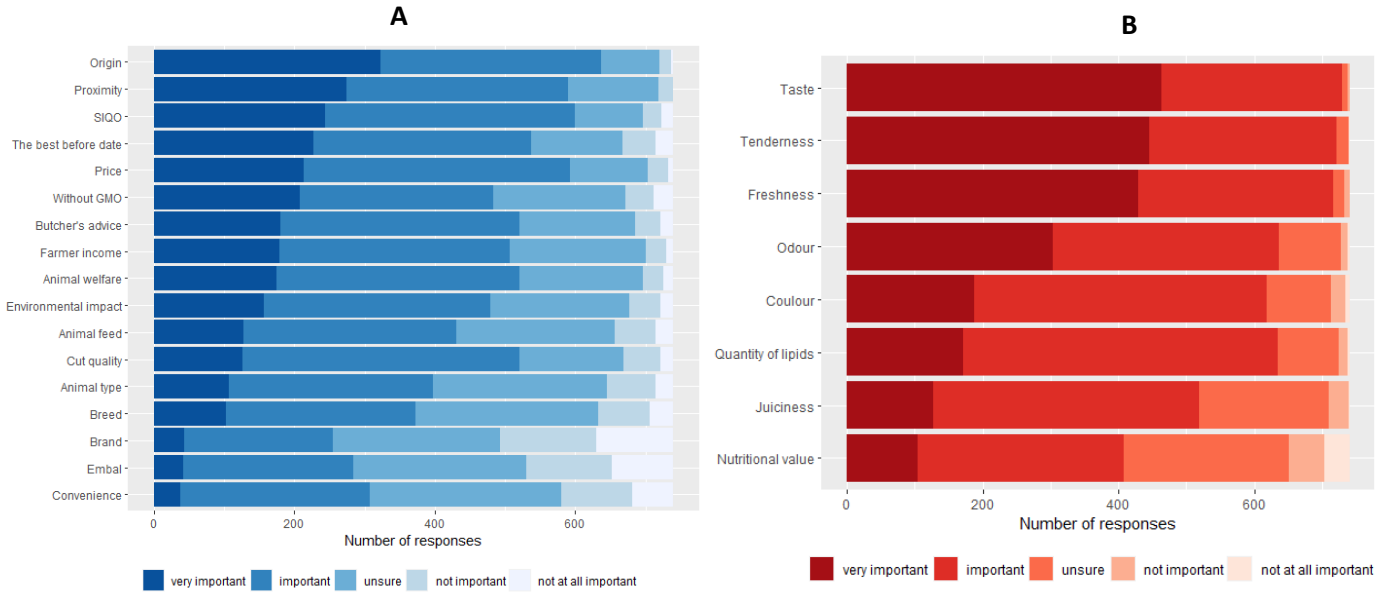



Figure 1. Most important extrinsic (A) and intrinsic (B) criteria of beef quality

Sensory analyses (on sirloin steak and premium beefsteak) confirmed the primary importance of flavour liking and tenderness. These quality traits were the highest for cooked beef from cull cows (for the sirloin steak) and heifers (for the beefsteak) compared to young bulls. However, raw beef from heifers was preferred for its colour and global satisfaction, compared to beef from young bulls for which the colour was too pale. Among the reasons why consumers did not want to purchase again the cooked meat, were: lack of taste, tough beef, lack of tenderness and not juicy.

These findings were consistent with the literature, where consumers showed that they were willing to pay more for a beef that is tender, and that flavour was the priority for the consumers [6].

Regarding the extrinsic criteria of beef quality, our results align with those of Liu et al. [1], who found that the most important factors when purchasing food products are sensory quality (67%), price (56%), food safety (47%), origin/traceability (45%), ethics (42%), nutritional value (35%), and environmental impact (33%).

## IV. CONCLUSION

In conclusion, it is important that consumers in the AURA region have access to various meat types in butcher shops, mainly of French origin and under quality signs to better meet their diverse expectations.

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