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What do consumers like about roast chicken? (#628)

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Introduction

The consumption of chicken meat is increasing across the world. Previous work has indicated that consumer liking can vary considerably [Farmer et al., unpublished data]. While many studies have investigated the factors affecting sensory quality of chicken meat [1, 2], few have investigated which attributes consumers like and which muscle components are required. This paper aims to identify those traits of most importance to consumers.

Methods

Whole chickens were obtained from one batch from 14 commercial sources, chosen to give a wide range of sensory qualities. The chickens were slaughtered, processed and prepared as whole chickens according to commercial practice. They were blast frozen at 2-3 days post-slaughter, band-sawed into two halves, vacuum packed and stored at -20°C. Two breasts from 16 chickens from each treatment were allocated to sensory profiling and chemical / spectroscopic analyses, respectively. The two halves of a further 32 chickens were used for consumer panels in Northern Ireland and Great Britain.

Sensory profiling was conducted on chickens from 14 treatments using eight panellists trained to score chicken against 43 attributes using a line-scale (0-100). Seven treatments were selected, based on greatest sensory differences, for consumer panels using 128 people at each of two locations. Samples were scored for *aroma liking, flavour liking, tenderness, juiciness* and *overall liking* on a line-scale (0-100). They also completed a socioeconomic and attitudinal questionnaire.

Random Effect Model variance component (REML) analysis was conducted. Cluster groups were generated using hierarchical cluster analysis and characterised using the responses to the questionnaire. External preference mapping was performed on sensory profiling and consumer acceptability scores [3]. All statistical analysis was carried out using GenStat (VSN, Hemel Hempstead, UK).

Results

There were significant differences between sources for 18 sensory profiling attributes. Consumer panels on roast chickens from seven of these sources also gave significant differences between groups for *flavour liking, tenderness, juiciness* and *overall liking*. There were no differences between the consumer results from GB and NI. Figure 1 shows the external preference map for these data. Principal component 1 (PC1, 54%) differentiates primarily on the colour of the cooked meat, while PC2 (30%) separates chicken types on texture, flavour and aftertaste attributes. Consumer liking scores are associated with both *white appearance* and *tenderness, succulence, chicken flavour* and *intensity of flavour*.

Three main cluster groups (CGs) were identified for *overall liking*. These CGs showed few socioeconomic or attitudinal differences but were instead differentiated by their liking for different chicken groups, as shown in Figure 2. CG3 (n=107) liked all the chicken sources. CG1 (n=72) scored all the sources quite low while CG2 (n=57) differentiated between the sources.

Identifying which attributes are the main drivers for these differences is difficult when all attributes are considered together (Figure 1), so the analysis was repeated using only flavour and aftertaste profiling attributes. This generated a simpler external preference map (Figure 3). Average consumer liking is associated with *buttery, corn flavour* and *oily aftertaste.* However, when consumers were grouped into flavour cluster groups (FCGs) based on their liking for different chicken types, they differed in their perceptions. The largest group (FCG4; n=112) liked all chickens. However, FCG1 (n=69) and FCG3 (n=45) differentiated between chicken groups, showing different and complimentary preferences for flavour. FCG2 was small and is not considered further.

Research is also investigating relationships with instrumentally and spectroscopically measured meat quality traits, flavour compounds and precursors (not included in this abstract).

Conclusion

Consumers and trained sensory panels differentiate clearly between chickens from different sources, indicating clear differences in palatability. Different consumers like different traits, and can be categorised into subgroups, cording to their overall liking and flavour liking for different types of chicken, indicating that there are markets for chickens with different attributes.
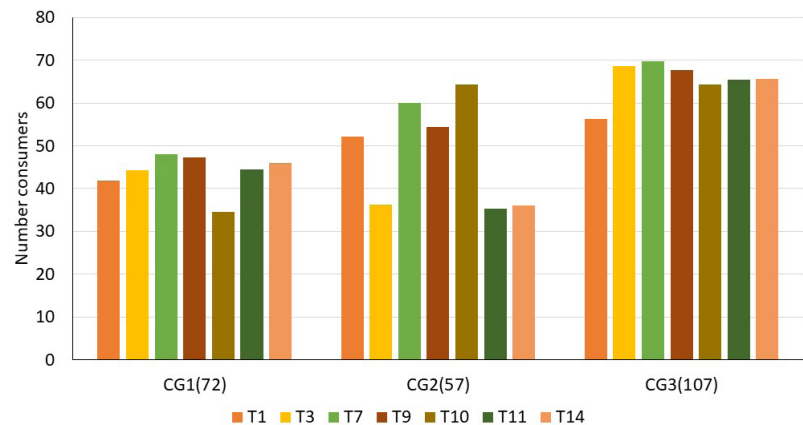
Figure 2. *Difference in overall liking scores between cluster groups for seven*
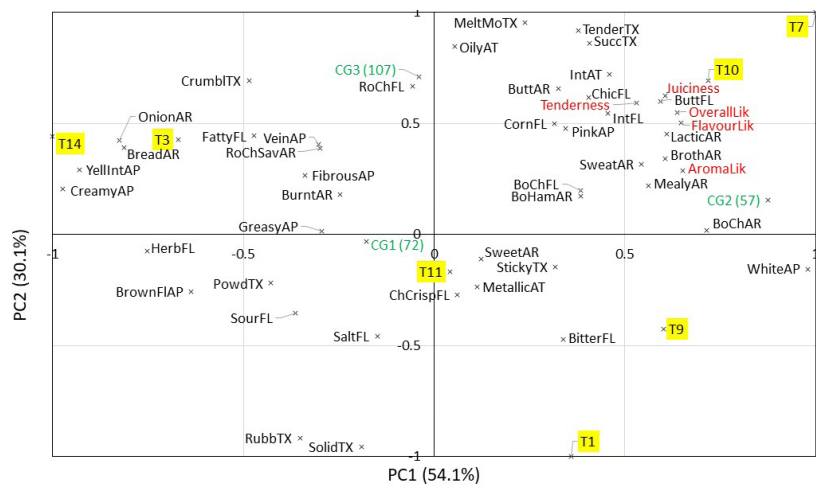*chicken sources*

Figure 1. *External preference map for seven types of chicken of dif-*
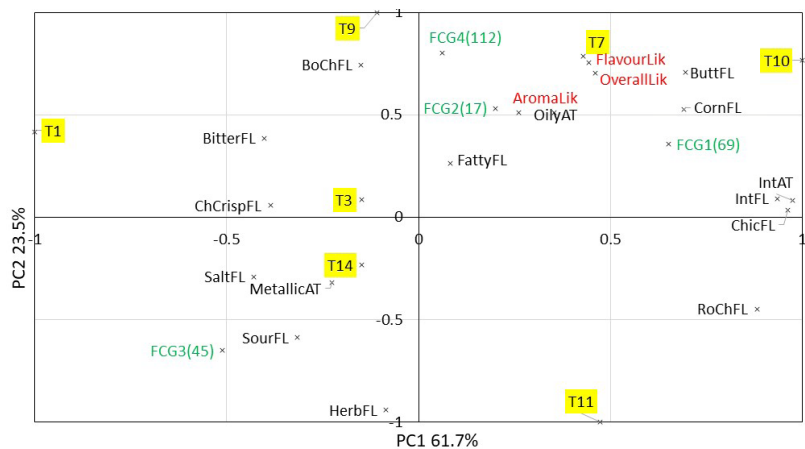*fering sensory*
quality (AR, AP, F

Figure 3 *External preference map for flavour and aftertaste*