



# Effects of eating context on food perception are not caused by the eating location itself

Garnt Dijksterhuis<sup>a</sup>, Daisuke Kaneko<sup>b</sup>, René De Wijk<sup>a</sup>, Manouk van Zoggel<sup>a</sup>, Irene Schiona<sup>a</sup>, Liesbeth Zandstra<sup>d,e</sup>

<sup>a</sup> Wageningen University and Research, The Netherlands, <sup>b</sup> Kikkoman Europe R&D Laboratory B.V. (KEL), The Netherlands, <sup>d</sup> Unilever R&D, The Netherlands, <sup>e</sup> Wageningen University, The Netherlands

## Background

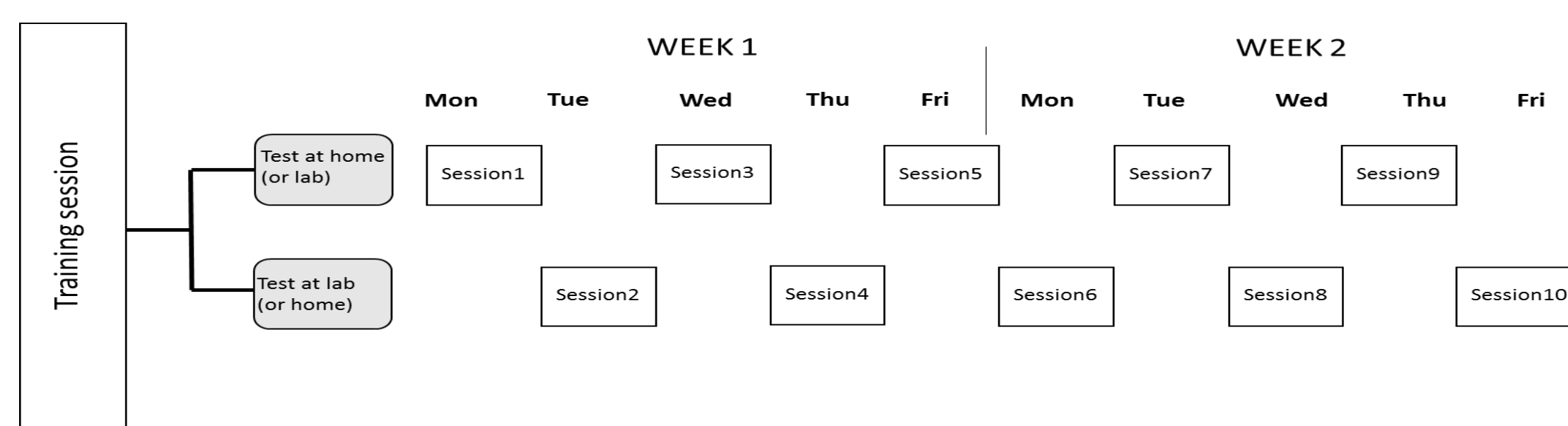
Real-life human eating behaviour does not take place in isolation but in a specific context such as one's home, a canteen or a restaurant. The acceptance of the consumed foods may vary with these specific contexts. Consequently, consumers' hedonic and sensory ratings elicited in a natural consumption context may differ from those elicited under controlled laboratory conditions. Identification of the factors that drive these differences is difficult because typically when comparing situations, not only the test environment varies but also factors such as consumer population, portion size, social context, time of day, and frequency of consumption.

## Objective

To investigate the effect of test location (lab versus home) on the evaluation of commercial foods presented repeatedly using a combination of implicit and explicit tests. Variables such as test procedures and social context were kept constant across locations.

## Methods

Twenty-seven healthy Dutch consumers (18-65 years of age) tested four test foods plus a warm-up sample ten times on consecutive weekdays and on similar hours using their own laptop and webcam. Test foods were: fried chicken, chicken with soy sauce, fried tofu with soy sauce, and vegetarian chicken. Test locations alternated between the sensory laboratory and the participant's own home (Scheme 1). Explicit measures included liking scores and scores on ten sensory taste/flavour/texture attributes.



Scheme 1: Schedule of testing. Each participant participated in ten test sessions alternating between home and lab.

## Results

Liking scores varied significantly with test foods ( $p < 0.001$ ). Liking scores at home were somewhat higher than liking scores in the lab ( $p = 0.05$ ) (Figure 1). Product rank order for liking was unaffected by test location.

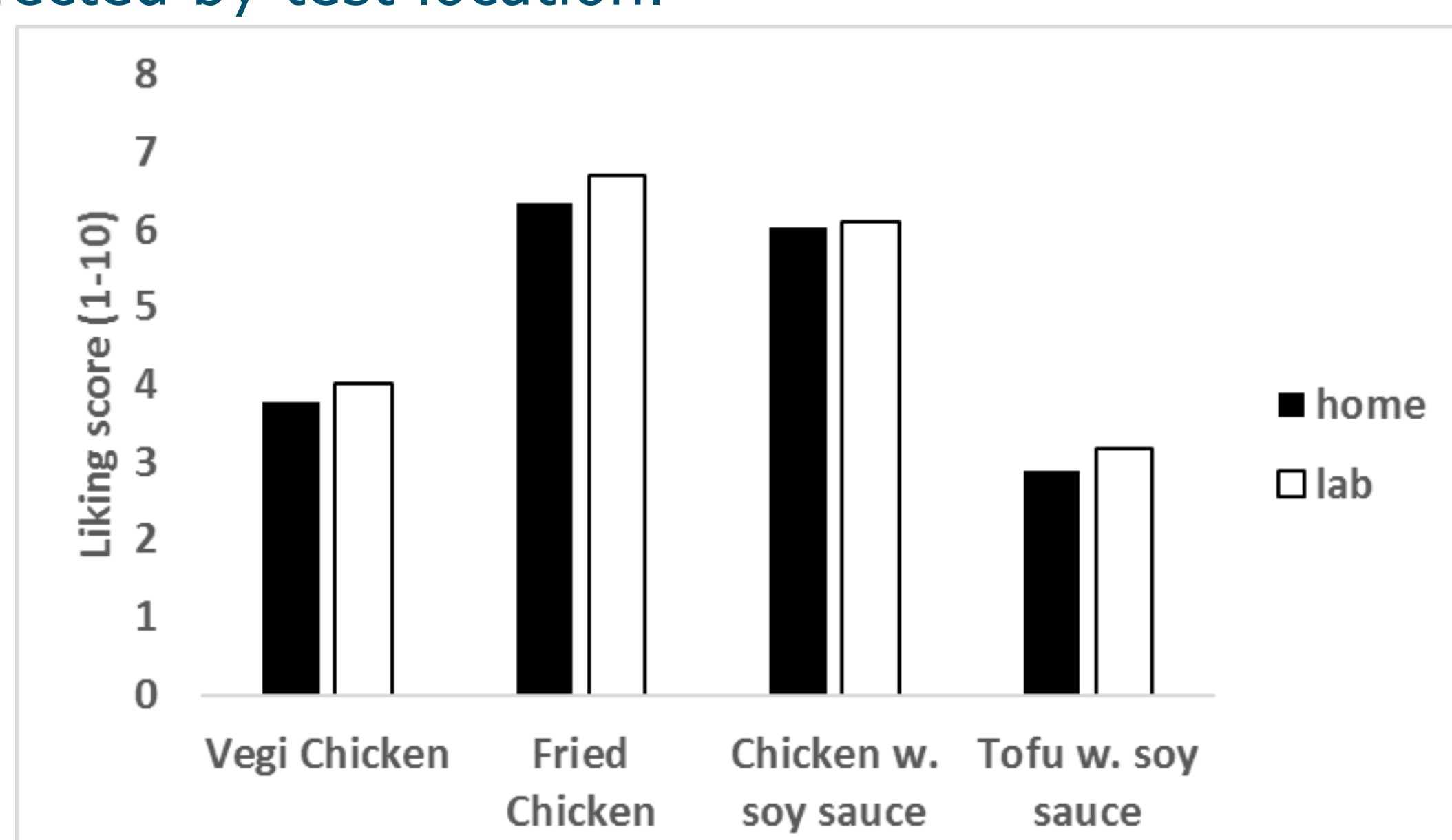


Figure 1: liking scores per test food and test location.

Overall, attributes were affected differently by test location ( $p = 0.05$ ) but post-hoc tests showed no significant effect of test location for any of the single attributes (Figure 2).

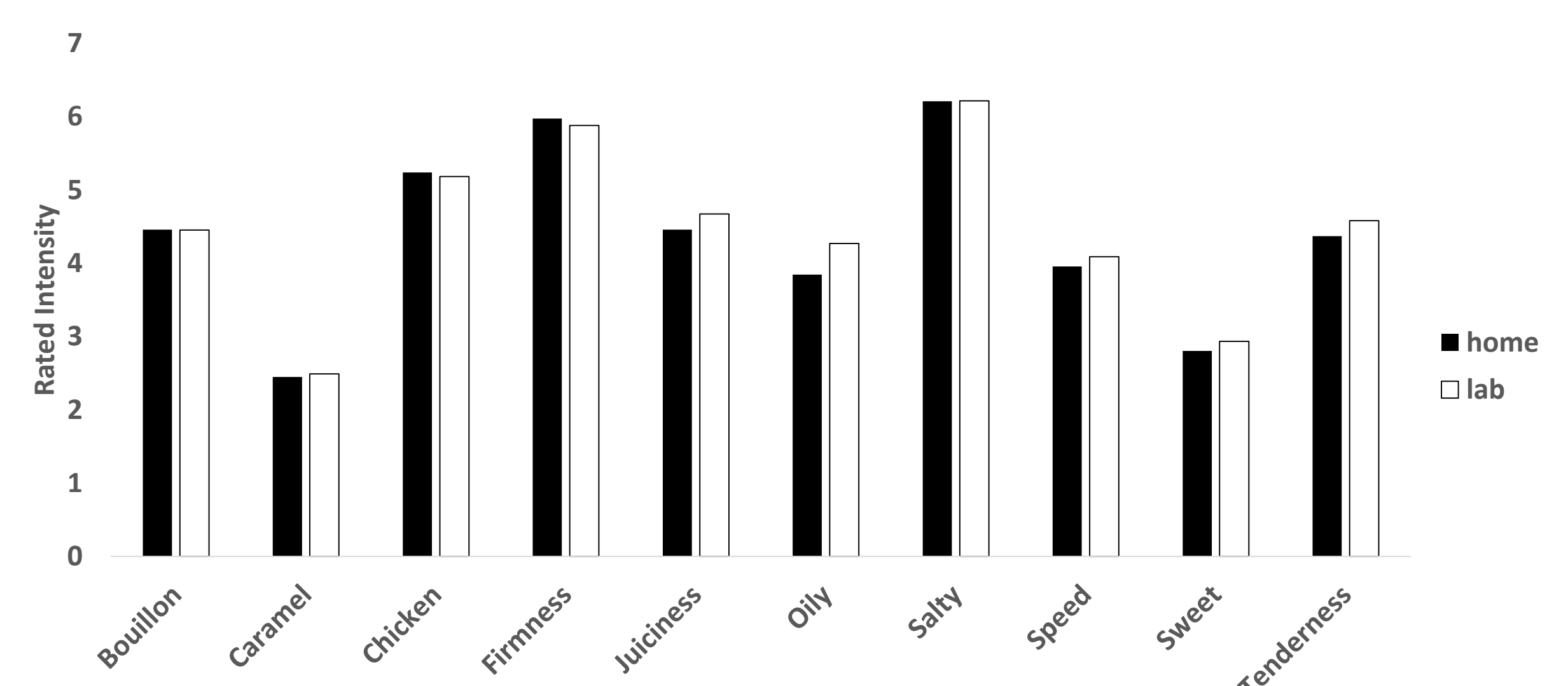


Figure 2: ratings per attribute and test location averaged across test foods, replicates and participant.

Attribute scores in the lab were more constant across replicates than scores at home ( $p < 0.05$ ).

Attributes were affected differently by replicate ( $p < 0.001$ ): ratings of bouillon, oiliness, and saltiness decreased across replicate ( $p < 0.05$ ), whereas others increased (tenderness,  $p < 0.05$ ) or were unaffected (Figure 3).

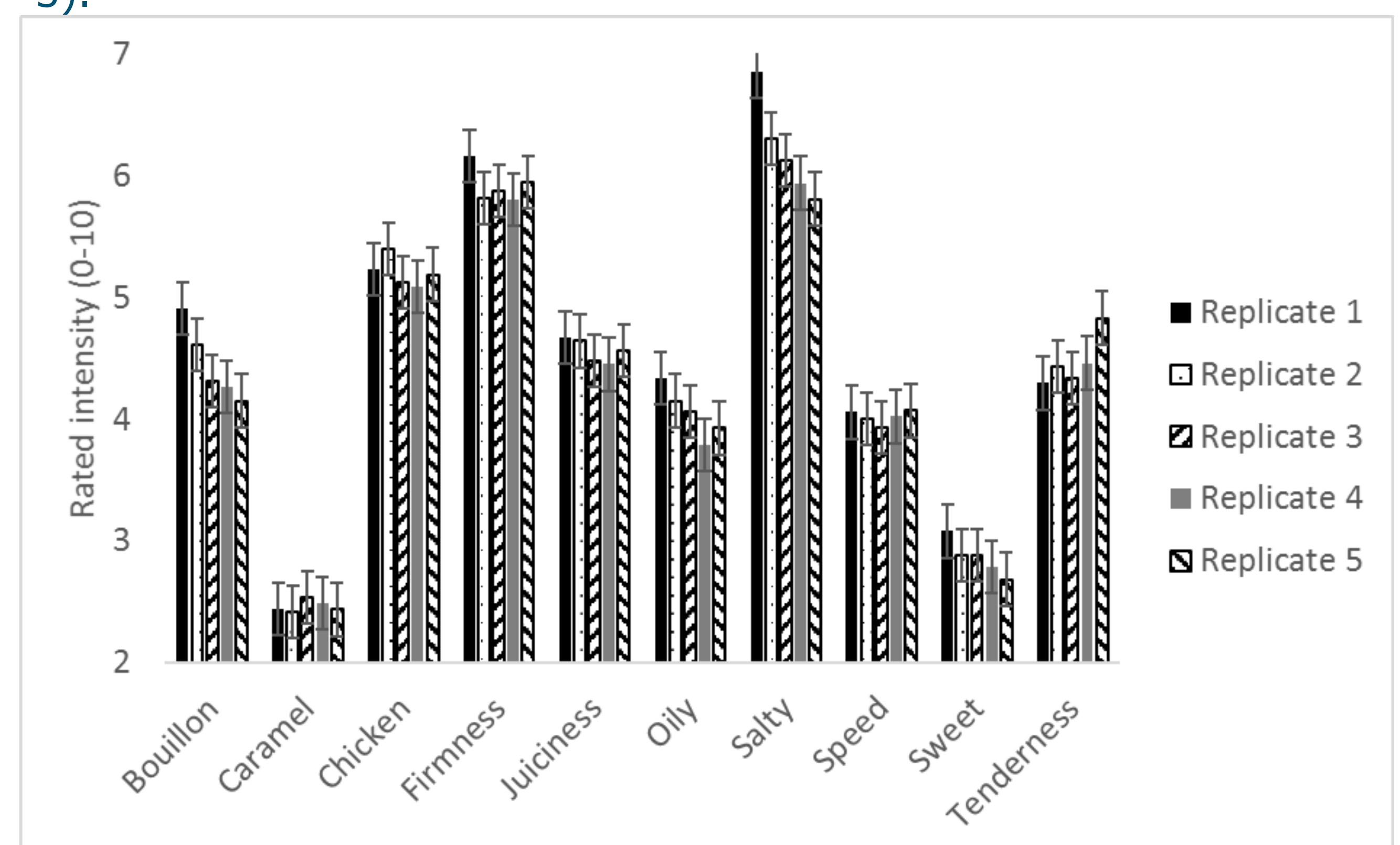


Figure 3: ratings per attributes and replicate averaged across test foods, test locations and participants.

## Conclusions

Liking and sensory attribute scores varied significantly with test location but the effects were typically small. Overall, testing at home and in the lab resulted in similar product differences. This suggests that the larger effects of test location found in other studies may be related to factors other than just the test location itself.

## Acknowledgements

This work was supported by a grant from the Dutch Top Consortium for Knowledge and Innovation (TKI) Agri&Food together with Unilever R&D Vlaardingen, Kikkoman Europe R&D Laboratory B.V. (KEL) and Noldus Information Technology (TKI-AF-17005).

