

Consumer perceptions of vertical farming: a preliminary analysis of UK and Irish consumers

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Vertical farming (VF) is a novel food technology in which fresh crops are grown in vertically stacked layers using hydroponic, aeroponic or geponic systems. Consumer understanding and acceptability of VF is essential to maximise the commercial potential for this technology. Some consumer evidence to date indicates that sustainability could be a primary driver of acceptance of VF, yet there is a distinct lack of knowledge concerning this technology^(1,2,3). The aims of this study were to assess consumers' attitudes, knowledge and perceptions of VF, and to explore their willingness to pay (WTP) for vertically farmed produce. A convenience sample of participants living in the UK (North-East England region, n = 104) and Republic of Ireland (Dublin region, n = 68) were recruited through social media and University channels to participate in an online quantitative survey prepared through Google Forms. Ethical approval was granted by Newcastle University, and all participants gave written consent prior to participating. The survey was composed of 42 questions related to demographics, habits related to consumption of fresh produce, opinions on agricultural topics related to the production of fresh produce, and WTP for vertically farmed herbs. Responses included multiple choice answers, 5-point Likert scales (1 – Strongly Disagree to 5 – Strongly Agree), and free-text answers. Results from each region (UK, Ireland) were analysed separately. Statistical analysis was performed using SPSS (Version 26). A Kruskal-Wallis test was used to determine if demographic factors had an effect on opinions on agricultural topics, and a chi-square test was used to determine effects of demographics on perceptions related to labelling and WTP. In all cases, statistical significance was achieved when $p < 0.05$. Participants were predominantly young (18–34: UK 38%; Irish 77.1%) and well-educated (bachelor's degree: UK 43%; Irish 50%). The results indicated that sustainability and product taste and quality are important drivers of VF acceptance. UK and Irish consumers were undecided as to whether they perceived VF as natural. Ninety percent and 96% of UK and Irish consumers, respectively, indicated they would be willing to pay the same price for vertically farmed produce compared to conventionally grown produce. Thirty-eight percent and 47% of UK and Irish consumers, respectively, indicated they would be willing to pay more for vertically farmed produce (UK £1.25 to £1.36; Irish €1.49 to €1.66). In summary, perceived sustainability and food quality could be important drivers of acceptability of VF for young, educated UK and Irish consumers. The WTP data also suggests a significant degree of consumer preference for VF produce amongst UK and Irish consumers.

References

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