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Research Highlights

Seeds of industry sustainability: Consumer attitudes towards indoor agriculture benefits versus its advanced technology

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The success of the indoor agriculture (IA) industry depends on consumer acceptance innovative IA technologies and their willingness to consume leafy greens produced under these technologies. Here we summarize the analysis of consumer segmentation by using a representative sample of U.S. consumers based on their attitudes towards IA.

A total of 2,114 individual responses from leafy green consumers living in the U.S. were obtained for this study between July and August 2021. Using cluster analysis with principal components, four distinct groups of U.S. leafy green consumers were identified (Fig. 1): "IA Skeptics", "IA Open", "IA Supportive", and "IA Engaged". A strong positive consumer cluster emerged with no evidence of an existing cluster of consumers who could be referred as "Knowledgeable Rejectors", often found from the studies of consumer acceptance for novel food technologies. Although we found a consumer cluster that could be called "IA Skeptics", 37% of them were willing to consume IA produce.

We concluded that, overall, U.S. leafy green consumers are ready to accept IA produce, but a significant number of consumers are yet to clearly decide on their attitude towards IA technology. Based on the evidence found from this study, we identified market opportunities for the IA industry with consumers of leafy greens given their broad willingness to consume IA produce and suggest marketing strategies to expand consumer awareness and acceptance of IA produce.
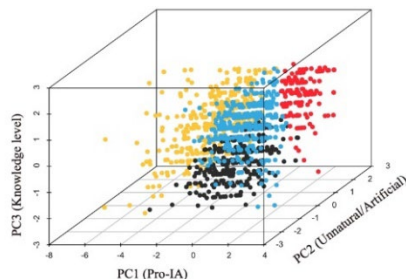
IA Skeptics
IA Open
IA Supportive
IA Engaged

Figure 1. Scatter plot of the scores of the three principal components of individual consumers on the 3−dimensional space of the principal components (PC).

Summary of Findings
Four distinct consumer clusters:

- IA Skeptics (31%)
- IA Open (25%)
- IA Supportive (30%)
- IA Engaged (14%)
- Currently, there exists significant consumer attitude heterogeneity towards IA.
- There was no clear knowledgeable opposer IA cluster from the cluster analysis, a cluster we might have named "knowledgeable rejectors"
- The expectation that the perception of unnaturalness or artificialness would move consumers strongly away from IA was not confirmed.
- Gender, education level, living area, leafy green consumption behavior, self-reported leafy green attribute importance were found to be significant explanators for cluster membership.

Take-Home Message
- The industry should pursue marketing strategies that further increase consumer awareness and acceptance of IA produce. There's an opportunity to crystalize the market for IA.

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