



Ariana Torres  
torres2@purdue.edu

Volume 13 Number #42 August 2024

# Do consumers prefer safe, sustainable, or nutritious veggies?

*This publication illustrates the findings from a study conducted by the author and collaborators titled “Safe, Sustainable, and Nutritious Food Labels: A Market Segmentation of Fresh Vegetables Consumers, published in Food Control Journal (Velasco et al., 2024).*

Food labels can help consumers make choices by providing information regarding the nutritional content, food safety, and environmental footprint of a product. As the number of food labels in the marketplace increases, and so does the information overload, food retailers are continuously challenged to assess consumers’ choices for labels. In addition, consumer heterogeneity and changing regulations and demand have yielded inconsistent findings on consumers’ preferences for food labels.



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**A cluster analysis yielded four consumer segments that were identified with statistically different concerns and priorities: Label Conscious, Wellness Enthusiasts, Safe Veggies, and DIYers.**


This study used a three-step approach to identify the market segments of fresh vegetables (FVs) consumers based on their preferences for a comprehensive list of labels conveying food safety, nutritional benefits, and pro-environmental attributes.

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Consumers are exposed to a wealth of product information at the marketplace, which can influence their preferences and, ultimately, their behavior. Among all sources of information, food labels help consumers make choices by providing information regarding the nutritional content, food safety, and environmental footprint of a product.

Historically, government-regulated labels, such as USDA Organic, have guided consumers' decision-making; yet the food label landscape has become more complex and diverse, with an extensive number of labels created by farmers, processors, and retailers conveying information about the handling, time for consumption, storage, and preparation of fresh vegetables (FVs).

Food safety regulation receives considerable attention in societal and political discussions because it ensures the protection of human health. Food safety labelling is a major tool used by governments and industry stakeholders to build consumer trust. Labels can help consumers assess if foods are safe to consume, especially in instances when food safety cannot be discerned through visual and physical signs.

Labeling nutritional benefits is one of the most common and powerful strategies to influence consumers' perceived healthiness of foods. Since FVs are rich in nutrients and offer numerous health benefits, FVs are deemed as an essential component of a healthy diet. Nutritional labels convey nutrient-specific content such as energy (in form of calories), fat, sugar, sodium, etc.

Consumers are increasingly aware of the environmental impact derived from their food choices and are searching for products with sustainable production practices. As consumers demand for pro-environmental labels continues to grow, the food industry is responding with an increase in labeling and certification programs that convey foods are grown and handled with sustainable practices.

Market segmentation is a widely used approach for clustering groups of consumers based on their values, perceptions, and beliefs. Identifying market segments of consumers that respond to common needs and concerns helps producers and retailers tailor products and branding that is attractive to a specific cluster. Market segmentation can also disentangle the most important labels for specific groups of consumers based on psychographic and demographic factors.

This study used a three-step approach to identify the market segments of fresh vegetables (FVs) consumers based on their preferences for a comprehensive list of labels conveying food safety, nutritional benefits, and pro-environmental attributes.



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The importance of segmenting consumers based on their preferences for food labels derives from the power of tailoring marketing and training campaigns that build consumer trust and long-term retailer-customer relationships. This study identified the three major dimensions of consumers' food labels for FVs

- Reduced food risk
- Safe convenience
- Health and sustainability

The fact that these three dimensions have a combination of food safety, nutritional, and pro-environmental attributes suggests either consumers diverse preferences for overall well-being and/or lack of clarity among different food labels, which highlights the need to enhance consumer education, simplify labeling, and provide clear and consistent information from trusted sources.

Because food safety, nutritional, and pro-environmental attributes were highly valued by most consumers in our sample, it is essential for farmers, packers, and retailers to bring awareness of the production, handling, and packaging practices of FVs to align with consumers' preferences and values. Similarly, traceability efforts that include identifying the single product lot and tracing it from grower to processor and retailer can be instrumental in preventing food safety outbreaks and building consumer trust in the FVs supply chain.

Understanding how different segments of consumers value food labels can enhance effective communications within the FVs supply chain, improve traceability, and provide insights for marketers, government, and policy makers.



A cluster analysis yielded four consumer segments that were identified with statistically different concerns and priorities: Label Conscious, Wellness Enthusiasts, Safe Veggies, and DIYers.

**Label Conscious** was the largest segment, including 45% of the market. Consumers in this segment valued every food label significantly more than any other cluster. Specifically, they placed the highest valuation for labels such as free of bacterial contamination, free of pesticides, and free of chemicals, relative to other clusters. Because of the preferences for online information and online purchasing by Label Conscious consumers, it is important that FVs retailers provide not only food labels on websites and digital channels, but also transparent and abundant information that allows to build consumer trust. Label Conscious consumers to assess the nutritional, food safety, and pro-environmental attributes of FVs. The goal of providing both clear food labels and information can help consumers assure that the products they purchase online meet safety and quality requirements.

**Wellness Enthusiasts** represented 20% of the market. Wellness Enthusiasts valued labels such as high in protein, low in fat, low in sugar, low carbon footprint, pre-washed, ready-to-eat, and third-party certifications more than others.

**Safe Veggies** segment included 17% of the market and valued labels that convey FVs are free of contamination or deterioration, free-of-pesticides, GAP, traceability, free-of-bacterial contamination, and free-of-chemical contamination more than others.

**DIYers** represented 17% of the market. DIYers showed the lowest valuation for most labels, especially those conveying FVs are pre-washed and ready-to-eat.

The fact that DIYers consumers placed lower priority for pre-washed and ready-to-eat food labels suggests that this market segment may choose to purchase FVs directly from farmers or may prefer to wash and prepare their FVs at home to maintain a sense of control over the food preparation process.

The fact that vendors at farmers markets tend to share information on the production and handling of FVs, instead of using packaging and labels, can be appealing to DIYers consumers, who seem to purchase in DTC markets and perceive that the consumption of vegetables is important.

Our results suggest that retailers should be aware of and responsive to consumers' information preferences and use a multi-channel approach (e.g., environmental organizations, labels, government, and social media) to inform about the benefits of food products and address any potential misinformation due to food safety risks and outbreaks.

We suggest that product signals, packaging, and labels targeting DIYers consumers should include educational messages on how to handle and prepare FVs to help reduce the incidence of foodborne illness and build trust with the FVs industry.

**e-GRO Alert**

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**CONTRIBUTORS**

Dr. Nora Catlin  
Floriculture Specialist  
Cornell Cooperative Extension  
Suffolk County  
[nora.catlin@cornell.edu](mailto:nora.catlin@cornell.edu)

Dr. Chris Currey  
Assistant Professor of Floriculture  
Iowa State University  
[ccurrey@iastate.edu](mailto:ccurrey@iastate.edu)

Dr. Ryan Dickson  
Greenhouse Horticulture and  
Controlled-Environment Agriculture  
University of Arkansas  
[ryand@uark.edu](mailto:ryand@uark.edu)

Dan Gilrein  
Entomology Specialist  
Cornell Cooperative Extension  
Suffolk County  
[dog1@cornell.edu](mailto:dog1@cornell.edu)

Dr. Chieri Kubota  
Controlled Environments Agriculture  
The Ohio State University  
[kubota.10@osu.edu](mailto:kubota.10@osu.edu)

Heidi Lindberg  
Floriculture Extension Educator  
Michigan State University  
[wollage@anr.msu.edu](mailto:wollage@anr.msu.edu)

Dr. Roberto Lopez  
Floriculture Extension & Research  
Michigan State University  
[rllopez@msu.edu](mailto:rllopez@msu.edu)

Dr. Neil Mattson  
Greenhouse Research & Extension  
Cornell University  
[neil.mattson@cornell.edu](mailto:neil.mattson@cornell.edu)

Dr. W. Garrett Owen  
Sustainable Greenhouse & Nursery  
Systems Extension & Research  
The Ohio State University  
[owen.367@osu.edu](mailto:owen.367@osu.edu)

Dr. Rosa E. Raudales  
Greenhouse Extension Specialist  
University of Connecticut  
[rosa.raudales@uconn.edu](mailto:rosa.raudales@uconn.edu)

Dr. Alicia Rihn  
Agricultural & Resource Economics  
University of Tennessee-Knoxville  
[arihn@utk.edu](mailto:arihn@utk.edu)

Dr. Debalina Saha  
Horticulture Weed Science  
Michigan State University  
[sahadeb2@msu.edu](mailto:sahadeb2@msu.edu)

Dr. Beth Scheckelhoff  
Extension Educator - Greenhouse Systems  
The Ohio State University  
[scheckelhoff.11@osu.edu](mailto:scheckelhoff.11@osu.edu)

Dr. Ariana Torres-Bravo  
Horticulture/ Ag. Economics  
Purdue University  
[torres2@purdue.edu](mailto:torres2@purdue.edu)

Dr. Brian Whipker  
Floriculture Extension & Research  
NC State University  
[bwhipker@ncsu.edu](mailto:bwhipker@ncsu.edu)

Dr. Jean Williams-Woodward  
Ornamental Extension Plant Pathologist  
University of Georgia  
[jwoodwar@uga.edu](mailto:jwoodwar@uga.edu)

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