



# THE FRUIT AND VEGETABLE INDUSTRY SERIES



FRUIT AND VEGETABLES SCHEME



## OECD-COLEAD Fruit and Vegetables Industry Series

### Session n°7 – Factors affecting consumer choices for fresh fruits and vegetables

Thursday 20 June 2024

08:00-09:30 UTC / 10:00-11:30 CET (*time in Paris / Brussels*)

[Online \(Zoom\)](#)

*English-French interpretation available*

## 1. Context

Food systems and diets are transforming rapidly in many parts of the world, particularly in low- and middle-income countries (LMIC). Changes in income, employment, taste, and location have direct implications for food choices and shopping patterns, which in turn have impacts on consumers' nutrition and health, as well as environmental sustainability and resilience of the food system.<sup>1</sup>

Dietary patterns are changing worldwide with a general trend toward unhealthy diets with high risks of malnutrition, micronutrient deficiencies, representing significant health, economic and environmental burdens. Most LMICs, particularly in Africa, are experiencing a dietary transition from traditional to highly processed foods, mostly driven by globalisation and urbanisation.<sup>2</sup>

Fresh fruit and vegetables (FFVs) are the foundation of a balanced diet. They are the main dietary source of vitamins and minerals and a significant source of dietary fibre, which is considered to lessen the incidence of cardiovascular disease and obesity. Compared to other food sources, they are high in potassium and low in sodium. In addition, fruit and vegetables (FVs) have unique and appealing textures, colours, and flavours; they are relatively low in calories (excluding staple crops) and are cholesterol-free.<sup>3</sup>

<sup>1</sup> Ruben, Ruerd; Grace, Delia; and Lundy, Mark. 2020. [Supporting consumer choices toward healthy, safe, and sustainable diets in low- and middle-income countries](#). Washington, DC: International Food Policy Research Institute (IFPRI).

<sup>2</sup> Stadlmayr Barbara, Trübswasser Ursula, McMullin Stepha, Karanja Alice, Wurzinger Maria, Hundscheid Laura, Riefler Petra, Lemke Stefanie, Brouwer Inge D., Sommer Isolde. Factors affecting fruit and vegetable consumption and purchase behavior of adults in sub-Saharan Africa: A rapid review. *Frontiers in Nutrition* vol. 10. 2023. <https://www.frontiersin.org/articles/10.3389/fnut.2023.1113013>.

<sup>3</sup> Aron Török, Ching-Hua Yeh, Davide Menozzi, Péter Balogh, Péter Czine, European consumers' preferences for fresh fruit and vegetables – A cross-country analysis, *Journal of Agriculture and Food Research*, Volume 14, 2023, 100883, ISSN 2666-1543. <https://doi.org/10.1016/j.jafr.2023.100883>.

Harris J, de Steenhuijsen Piter B, McMullin S, et al. Fruits and Vegetables for Healthy Diets: Priorities for Food System Research and Action. 2023 Jan 2. In: von Braun J, Afsana K, Fresco LO, et al., editors. *Science and Innovations for Food Systems Transformation* [Internet]. Cham (CH): Springer; 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK599612>



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However, worldwide consumption of FVs is far below international recommendations, including in many LMICs, particularly in Africa.<sup>4</sup> Despite the positive health effects of FFVs, according to the latest statistics, their per capita consumption in Europe is below the World Health Organization (WHO) recommended minimum intake. In addition, the market segment of FFVs has unique characteristics (e.g., substantial seasonal variation affecting availability, quality, and price, lack of branding, limited shelf time, etc.), thus they require special attention compared to other food categories (e.g., consumer packaged goods).<sup>5</sup>

To develop effective interventions to increase FVs consumption, the factors influencing consumer behaviour need to be better understood. The choices surrounding FFVs are influenced by many factors such as household income, socio-economic status, and education. People with higher income levels and better education are more likely to consume a diverse range of FVs. Personal preferences, knowledge about health benefits, and dietary restrictions also significantly influence individual choices. The choice between products quality and quantity can vary significantly depending on socioeconomic status, cultural preferences, product type, and individual priorities. Similarly, when the price of a good rises, consumers tend to purchase less of it and seek out substitutes instead. What, where, how, and when people choose to eat or acquire food requires an understanding of the multiple influences ranging from a variety of personal and interpersonal factors to more distant, structural issues.<sup>6</sup>

## 2. Factors influencing choices made by consumers when buying FVs

Within the sustainable food systems framework developed by the High-Level Panel of Experts on Food Security and Nutrition (HLPE), food supply chains, food environments, and consumer behaviours are core elements influencing diets.<sup>7</sup> The HLPE defines **consumer behaviour** as “all the choices and decisions made by consumers, at the household or individual level, on what food to acquire, store, prepare, cook and eat, and on the allocation of food within the household (including gender repartition and feeding of children).<sup>8</sup>

The drivers of consumer preferences for FFVs are appearance, brand, environmental sustainability, food safety, freshness, nutritional value, odour, origin (locally grown, imported), packaging, price, quality certifications (organic, in particular), seasonality, shelf-life related characteristics, taste, and variety.

Choices are influenced by production methods (i.e. environmentally friendly production), variety, nutritional value, taste, visual appearance, freshness, region or country of origin, price, fair trade, organic production, knowledge of producer.

### 2.1. Consumer’s choices in Africa

Africa boasts a rapidly expanding middle class, expected to reach 313 million people by 2030. This demographic shift holds immense potential for the food and beverage industry, with health-conscious consumers increasingly seeking higher-quality, diverse, and branded products.

<sup>4</sup> Stadlmayr Barbara, Trübswasser Ursula, McMullin Stepha, Karanja Alice, Wurzinger Maria, Hundscheid Laura, Riefler Petra, Lemke Stefanie, Brouwer Inge D., Sommer Isolde. Factors affecting fruit and vegetable consumption and purchase behavior of adults in sub-Saharan Africa: A rapid review. *Frontiers in Nutrition* vol. 10. 2023. <https://www.frontiersin.org/articles/10.3389/fnut.2023.1113013>.

<sup>5</sup> Áron Török, Ching-Hua Yeh, Davide Menozzi, Péter Balogh, Péter Czine, European consumers' preferences for fresh fruit and vegetables – A cross-country analysis, *Journal of Agriculture and Food Research*, Volume 14, 2023, 100883, ISSN 2666-1543. <https://doi.org/10.1016/j.jafr.2023.100883>.

<sup>6</sup> Blake CE, Frongillo EA, Warren AM, Constantinides S, Rampalli KK, Bhandari S. [Elaborating the science of food choice for rapidly changing food systems in low-and middle-income countries](#). *Glob Food Sec.* (2021) 28:100503.

<sup>7</sup> HLPE. [Food Security and Nutrition: Building a Global Narrative Towards 2030](#). A Report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome: HLPE (2020).

<sup>8</sup> *Ibid.*

GeoPoll conducted a survey in Ghana, Kenya, and Tanzania in March 2024 to shed light on several consumer preferences<sup>9</sup> such as:

- Most purchased household items recently: the top three household items purchased by respondents are cooking oil, sugar, and vegetables.
- Factors that influence purchasing: **quality** emerges as the most crucial factor closely followed by **price**. **Brand reputation** ranks third followed by **convenience** and **packaging**.
- The study findings indicate a preference for **quality** over quantity.

A study<sup>10</sup> aiming at understanding FV consumption and purchase focuses on the relationship between people and their social, physical and macro-level environments. The socio-ecological model describes the multiple influences on what people eat at the individual/household level (e.g., biological, demographic lifestyle/behavioural factors), the social level (e.g., influence of family, friend, community), the physical level (e.g., access and availability in the neighbourhood, at home, in food outlets), and the macro-level (e.g., sociocultural norms, agricultural policies).

The consumption of FVs is particularly unaffordable for many people from low-income countries including in Africa.<sup>11</sup> Evidence for household size showed that increasing size was related to lower or less frequent FV consumption. This implies that larger households require more resources to provide for the needs of all household members than smaller households and are therefore less likely to consume adequate amounts of FVs. With regards to marital status, some evidence exists that being married, or cohabiting is associated with higher and more frequent fruit and vegetable consumption. Authors argued that marriage involve social interactions including regular meals, as well as possible control over the health behaviour of the spouse. Supermarkets do not necessarily provide access to healthy and affordable food. This was confirmed by a panel data study in three Kenyan cities, which showed that shopping in supermarkets contributed to lower consumption of FVs, but higher consumption of processed and highly processed foods.<sup>12</sup>

A study looks at issues of FV quality in supermarkets and the general higher prices of FVs compared to staples and snacks as a possible reason why urban supermarket shoppers in low socio-economic neighbourhoods in urban South Africa purchased FVs less frequently than shoppers from high and middle socio-economic areas.<sup>13</sup> These include women's empowerment and gender inequalities, the influence of neighbourhood and retail food environment such as distance to market and price of FVs, as well as the importance of natural landscapes including forest areas for FV consumption.

At the macro-level environment, seasonality was the most frequently studied factor and results were consistent across studies showing significant differences in FV consumption between seasons. Among the main arguments within the studies was that seasonality is a crucial element of food availability, particularly in rural areas, where smallholder farm households depend on rainfed agricultural production. Moreover, seasonality leads to price fluctuations, particularly in Africa, affecting overall perishable food like fruit and vegetables.<sup>14</sup>

<sup>9</sup> Newton Adika. African consumer's preference – Quality vs Quantity. April 2024. <https://www.geopoll.com/blog/african-consumers-preference-quality-vs-quantity/#:~:text=Our%20findings%20indicate%20a%20preference,of%20one%20over%20the%20other>

<sup>10</sup> Stadlmayr Barbara, Trübswasser Ursula, McMullin Stepha, Karanja Alice, Wurzinger Maria, Hundscheid Laura, Riefler Petra, Lemke Stefanie, Brouwer Inge D., Sommer Isolde. Factors affecting fruit and vegetable consumption and purchase behavior of adults in sub-Saharan Africa: A rapid review. *Frontiers in Nutrition* vol. 10. 2023. <https://www.frontiersin.org/articles/10.3389/fnut.2023.1113013>

<sup>11</sup> Miller V, Yusuf S, Chow CK, Dehghan M, Corsi DJ, Lock K, et al. Availability, affordability, and consumption of fruits and vegetables in 18 countries across income levels: findings from the Prospective Urban Rural Epidemiology (PURE) study. *Lancet Glob Health*. (2016) 4:e695–703. doi: 10.1016/S2214-109X(16)30186-3.

<sup>12</sup> Demmler KM, Ecker O, Qaim M. [Supermarket Shopping and Nutritional Outcomes: A Panel Data Analysis for Urban Kenya](#). *World Dev.* (2018) 102:292–303.

<sup>13</sup> Odunitan-Wayas FA, Okop KJ, Dover RV, Alaba OA, Micklesfield LK, Puoane T, et al. Food purchasing behaviour of shoppers from different South African socio-economic communities: results from grocery receipts, intercept surveys and in-supermarkets audits. *Public Health Nutr.* (2020) 24:665–76. doi: 10.1017/S1368980020001275.

<sup>14</sup> Gilbert CL, Christiaensen L, Kaminski J. [Food price seasonality in Africa: measurement and extent](#). *Food Policy*. (2017) 67:119–32.

## 2.2. Consumer's choices in Europe

A European cross-country (France, Germany, Hungary, Italy, and Norway) analysis of FFV consumption patterns investigates 14 product attributes of FFVs.<sup>15</sup>

Best-Worse scores revealed that *freshness and taste* scored highest in all five countries, while *knowledge of the producer* was considered the least important attribute.

The *origin (country or region)* also tends to be among the major characteristics associated with FVs and, in some cases, has been considered the most influential attribute and one associated with safety and quality, although some studies have found less importance awarded to this attribute. It is often accompanied by ethnocentrism, with consumers usually more willing to pay for domestic products than imported ones. In terms of consumer information, expectations mainly relate to the origin of products and their traceability along the chain.<sup>16</sup>

*Nutritional value* has a mixed effect on consumers' evaluations of FFVs and *visual appearance* plays a major role.

The supply of and demand for *organic FFVs* are increasing rapidly, driven by consumer perceptions of the latter's benefits. Indeed, the European market for organically grown fruit and vegetables is buoyant for all suppliers, including from Africa, the Caribbean and the Pacific (ACP).<sup>17</sup> This is also the case for *environmentally friendly production*, with little importance reported. However, for FVs, environmental friendliness is a factor of relevance at the post-harvest phase, with consumers preferring unpacked FVs over packed options, regardless of their organic/non-organic status.

Supporting local producers, which also results in more *knowledge of producers*, is key to supporting the demand for regionally grown FFVs and is a rapidly growing trend, especially in developed countries. Furthermore, having a personal relationship with a producer increases trust and is perceived as a positive quality cue. However, results indicate that in all the selected countries, consumers' knowledge of the producer is the least important factor. This finding is surprising, however, as FFVs are considered one of the main product categories sold via short food supply chains (at farmers' markets, in particular), where personal relationships and face-to-face interaction between consumers and producers are key drivers. One explanation is that in supermarkets, in many cases, the producer's name is not indicated on the product.

*Traditional production methods* are well represented by geographical indications (GIs), and such products are usually associated with higher quality and organoleptic properties compared to conventional counterparts. However, the impact of GIs on preferences for FFVs is relatively limited, as is the *specific variety of the product*, which was found to be irrelevant unless FFVs are at least minimally processed. In addition, in many countries, the market size and the share of GI foods is rather limited.

Results clearly indicate that the freshness and taste of products are the most important product attributes that drive consumer preferences for FFVs in the selected countries. Gender,<sup>18</sup> age, education, income, and family/household size are also found to be relevant factors.

A choice experiment was conducted in two metropolitan areas in Northwest Italy assessing consumer preferences during FV sales, considering the sociodemographic variables of individuals together with their choice of point of purchase.<sup>19</sup> *Origin, seasonality, and freshness* were the most

<sup>15</sup> Áron Török, Ching-Hua Yeh, Davide Menozzi, Péter Balogh, Péter Czine, [European consumers' preferences for fresh fruit and vegetables – A cross-country analysis](#), Journal of Agriculture and Food Research, Volume 14, 2023, 100883, ISSN 2666-1543.

<sup>16</sup> [State of play and opportunities of the European market for fruit and vegetables from African, Caribbean and Pacific \(ACP\) countries](#), COLEACP, 2021, page 4.

<sup>17</sup> *Ibid*, page 5.

<sup>18</sup> M.G. Akpinar, et al. [The role of demographic variables in purchasing decisions on fresh fruit and vegetables](#), J. Food Agric. Environ., 7 (3–4) (2009), pp. 106-110.

<sup>19</sup> Massaglia S, Borra D, Peano C, Sottile F, Merlino VM. [Consumer Preference Heterogeneity Evaluation in Fruit and Vegetable Purchasing Decisions Using the Best-Worst Approach](#), Foods. 2019 Jul 18;8(7):266.

A total of 1170 consumers were interviewed at different FV purchase points (mass retail chains and open-air markets) using a paper questionnaire.



**preferred attributes that Italian consumers** considered for purchases, while no importance was given to *organic certification, variety, or brand*. This research demonstrates that *age, average annual income, and families with children* are all discriminating factors that influence consumer preference and behaviour.

To reduce food from being wasted, **suboptimal FVs** should be prevented from being perceived as having lower quality compared to optimal FVs. A study looked at how quality perceptions of consumers for suboptimal FVs could be increased, and subsequently their purchase intentions for these foods.<sup>20</sup> The main findings of this study are that adding an authenticity message to the shelf of suboptimal FVs will increase consumers' quality perceptions and purchase intentions as well.

According to a study on "Consumer Profiles of Sustainable Fruit and Vegetable Consumption in the European Union", sustainable FV consumption is more prevalent among women, educated individuals, higher-income consumers, and those over 55 years old. In contrast, the opposite profile consists of consumers with lower income, younger and middle-aged individuals, men, and those with less than a high school education, highlighting the need for effective strategies to promote a healthier diet in this group. Countries with lower economic development, reflected in consumer incomes, deviate the most from the recommended "at least five portions of fruit and vegetables a day" consumption pattern, and do not exhibit a sustainable consumption model. Thus, continued monitoring of consumer profiles is essential, with a focus on both the quantity and frequency of FV consumption, as well as strategies aiming to increase their intake.<sup>21</sup>

### 3. Way forward

The decision to purchase and consume FFVs depends on multiple factors. On a broader scale, economic factors such as inflation and labour shortages can impact the prices of fresh produce, thereby affecting consumer choices (i.e. COVID-19 pandemic). Government policies, agricultural practices, and global trade agreements also play a significant role in determining the availability and affordability of FVs. Understanding determinants is crucial for developing effective interventions to promote healthier dietary patterns at individual, social, physical, and macro-level. At the individual level, demographic elements such as household income, socio-economic status, and education play a pivotal role. People with higher income levels and better education are more likely to consume a diverse range of FVs. Personal preferences, knowledge about health benefits, and dietary restrictions also significantly influence individual choices. Social factors include cultural norms, family habits, and social networks.

Physical factors include accessibility and availability. The proximity of grocery stores, markets, and the availability of fresh produce can greatly affect consumption patterns.

To make FVs more affordable is a necessity. To address issues of economic access to FV consumption, there is a need to have interventions aimed at reaching lower socio-economic groups, such as social protection programmes improving access to credit or voucher systems. Making FVs more affordable needs to be embedded in a regulatory strategy and government schemes (i.e., subsidies on FV production, as well as improving local production, marketing, trade, and storage; incentivising the sale of healthier foods, such as FVs in retail markets, to support traditional markets and farmers' markets that sell fresh products around supermarkets, which can support the livelihoods of small informal vendors that might be replaced by large retail outlets).<sup>22</sup> Other strategies mentioned included focusing on improved methods of food storage and processing techniques for FVs to maintain dietary diversity, encouraging consumption of frozen FVs.

<sup>20</sup> S.E.M. Janssen. [Marketing and Consumer Behaviour](#). Wageningen University and Research. 2018.

<sup>21</sup> Goryńska-Goldmann, E.; Murawska, A.; Balcerowska-Czerniak, G. Consumer Profiles of Sustainable Fruit and Vegetable Consumption in the European Union. *Sustainability* 2023, 15, 15512. <https://doi.org/10.3390/su152115512>.

<sup>22</sup> Stadlmayr Barbara, Trübswasser Ursula, McMullin Stepha, Karanja Alice, Wurzinger Maria, Hundscheid Laura, Riefler Petra, Lemke Stefanie, Brouwer Inge D., Sommer Isolde. [Factors affecting fruit and vegetable consumption and purchase behavior of adults in sub-Saharan Africa: A rapid review](#). *Frontiers in Nutrition* vol. 10. 2023.

More communication on the multiple benefits of eating FVs on a regular basis, source of vitamins and minerals and fibres, needs to be made by governmental organisations and the industry.

#### **4. Promoting increased knowledge about the fruit and vegetable industry**

In the context of the United Nations (UN) 2021 International Year of Fruits and Vegetables, the COLEAD<sup>23</sup> through its FFM SPS and FFM Plus programmes (funded by the European Union and Organisation of ACP States (OACPS)) and the OECD Fruit and Vegetables Scheme<sup>24</sup> of the Trade and Agriculture Directorate launched an online series highlighting the significance of the FV sector and its various dimensions.

The main objectives of the series are:

- Sharing knowledge of markets and operators working in local and export FV markets
- Understanding the FV sector contribution to sustainable production and consumption
- Promoting FV contribution to healthy and nutritious diets
- Showcasing successes and innovations of private sector operators across the European Union and Southern countries and lessons learned.

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<sup>23</sup> As a private sector (not-for-profit) organisation, COLEAD's purpose is to support activities that aim to increase the agricultural sector's contribution to achieving the Sustainable Development Goals. <https://www.colead.link/>.

<sup>24</sup> OECD Fruit and Vegetables Scheme promotes international trade through the harmonisation of implementation and interpretation of marketing standards. <https://www.oecd.org/agriculture/fruit-vegetables/>.



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English-French interpretation available

### PROGRAMME

**Moderator:** *Isolina Boto, Head of Networks and Alliances, COLEAD*

#### 10:00-10:10 Welcome and introduction

- *José Brambila-Macias, Programme Manager, Trade and Agriculture Directorate, Agricultural Codes and Schemes, OECD*
- *Jeremy Knops, Délégué Général, COLEAD*

#### 10:10-10:40 Factors affecting consumers choices for fruit and vegetables

This panel will share information on trends and findings of recent research on European consumer's preferences and choices.

- *Dr. Michał Gazdecki, Researcher, Agri-food Market Analysis and Research Team, Poznań University of Life Science, Poland*
- *Dr. Frans Folkvord, Associate Professor, Tilburg University, the Netherlands*

#### 10:40-11:05 Views from operators

This panel will feature experiences from operators in the fruit and vegetable production and retail.

- *David Muya, Director, The Fresh Approach, Kenya*
- *Karan Narchail, Category Manager, Wealmoor United Kingdom*

#### 11:05-11:20 Q&A session

#### 11:20-11:30 Conclusion and way forward



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