

# Sustainable Agro-Food Consumption

Subjects: Behavioral Sciences | Business

Submitted by:  Hsin-Wei Hsu

## Definition

Sustainable agro-food consumption is a model intended to conserve the resources of today for future need. Consumers play a crucial role in transitioning towards sustainable food consumption, as they judge the attributes of products on the market and are the final decision-makers when it comes to changing consumption habits. Consequently, investigations on agro-food consumption from consumers' perspectives are of great value.

---

## 1. Introduction

The transition to agro-food production and consumption practices within sustainable food-chain development has undergone rapid expansion and its achievements have attracted much attention <sup>[1]</sup>. Many active implementations of sustainable consumption and production (SCP) are currently in progress across 178 countries of the world <sup>[2]</sup>. Organic production brings economic prosperity, social and environmental benefits, and advantages in rural development. It is irrefutable that the choice to consume organic foods has gained much popularity in the world of today, following realizations surrounding healthy self-improvement needs <sup>[3][4][5]</sup>. In light of this continuing trend, SCP is considered to be of great importance.

Sustainable production aims to further solidify economic and social progress whilst maintaining environmental harmony. Presently, organic production is an integrated system that incorporates organic food production and management with environmental concerns, reflecting congruence with social norms on sustainable consumption. However, consumers' attitudes toward sustainable agro-food (SAF) consumption correlate to omnipresent factors, for instance, the tastes, habits, lifestyles, food safety concerns, environmental considerations, and confidence of buyers. As expected, consumers' awareness about the aforementioned factors have brought about changes in purchase patterns, signifying end-users' preferences and eventually prompting the advancement of organic production. Consumers' perspectives account for a large proportion of SAF purchasing, leading to the necessary further inspection of buyers' credence toward SAF consumption <sup>[2][6][7]</sup>. Unequivocally, the progression of the effective investigation of SAF consumption requires the perspectives of consumers. However, compared to the analysis of manufacturers' perspectives, the scrutinization of consumer's perspectives regarding sustainable development has proven rather challenging, as the individual cognition process regarding green food consumption is relatively more complex than the measurement of manufacturing procedures. In fact, the transference of consumer perspectives from conventional to sustainable agro-food consumption is representative of accumulated social norm shifting, which often involves many intangible elements of decision making <sup>[8]</sup>. Although organic foods are considered mainstream now, previous papers have reported that consumers' attitudes towards sustainable food consumption and purchasing behavior are not consistent <sup>[2][9]</sup>.

In addition, the dynamics of different cultures, as well as individual competences across borders as regards sustainability, result in the need for further, sufficient studies to be undertaken on this topic. Due to improvements in quality of life and a shift in values from a traditional diet to a healthy diet in Asia, the consumption of organic food in Asia is on the rise, reflecting consumers' increasing preference for organic products <sup>[5][7][10]</sup>. Therefore, France and Taiwan were chosen for this cross-cultural comparison, to further compare consumer views from organic sectors of different maturity. Additionally, this investigation can add to the bigger picture regarding consumers' perspectives on food consumption in Asia <sup>[11]</sup>. The crucial value of this cross-cultural study is that it shows different developing pathways and may be used as a blueprint for further investigations.

## 2. Background of Sustainable Agro-Food Consumption

Sustainable agro-food consumption is related to diverse macro- and individual-level factors. For instance, macro factors such as the availability of green foods [3][12][13][14], the affordability of certain food options [5][9][10][15][16][17], the health and safety concerns of organic agro-foods [4][7][10][18][19][20][21], transportation and distributions systems [22][23][24][25], and the ecological concerns of the food supply [7][12][26][27] were inspected from previous studies. In recent years, more individual factors were examined, for example, consumers' awareness on SAF purchasing [12][28][29][30], perceived values of green food [31], and the shifting social norms over years of promulgation on SAF consumption [10][17][19][20][32].

In particular, social norms, referring to beliefs, values, attitudes, and behaviors of a group of people, play an essential role in sustainable purchasing behavior from end users' view [20]. Exploring social norms of SAF consumption remains key to understanding consumers' perspectives and purchase intention [10][19]. Studies on the effectiveness of social norms have shown that social message exposure may influence consuming choices in food intakes [20]. Consumers with more favorable attitudes toward organic foods demonstrated higher levels of health concerns and advisable consumption behavior [33]. Correspondingly, interpersonal related factors such as trust and tradition also addressed their efficacy in influencing food consuming behavior [7][9][23][25][29][34][35][36][37][38]. In addition to the affective influence on attitudes and judgements surrounding SAF consumption, social norms also highlight consumers' preferences as powerful interventions to govern consumers' decision making between individual behaviors and social factors [10][14]. Though contemporary research in the effectiveness of social norms and organic food consumption is sparse but growing, people's overall beliefs, values, attitudes, and behaviors, by all means to explain and also to influence their sustainable agro-food consumption choices [19].

Considering that the composition of social norms is inextricably intertwined with individual values and beliefs, consumer awareness of product quality, understanding and confidence of SAF is an essential factor of the study. The latest research has confirmed that one's distinct levels of knowledge, experience, and engagement toward green product consumption yield different effects on people's preference formation [31][39]. The more positive the attitude of an individual awareness towards the SAF consumption, the stronger the consumers' intention to perform their purchase behavior [5][39]. In general, consumers' health consciousness, knowledge regarding green foods, environmental concerns, animal welfare, and purchasing power are in relation to consumers' willingness to purchase organic food. To be more specific, egoist factors, defined as consumers' health-related concerns, were better predictors to organic food purchase behavior than altruistic factors that related to environmental concerns [34][35]. Similarly, sensory pleasure of green food contributes is related to the taste of habit, which help to drive the demand and consumption of SAF [9][40]. Previous studies have investigated that the taste and quality of SAF accelerated sales of organic foods, being one of the critical factors that influence consumers' level of preferences [16][36][37][38][41].

Although recent studies on navigating SAF consumption from the implicit aspect continue to be lauded by researchers, challenges of structural constraints have not gone unnoticed. To better understand the perspectives of consumers' SAF preferences, it is important to also capture consumers' perceptions on external constraints. For that, the distribution of SAF interacts with providers' pricing strategies; it is directly related to consumers' economic status [17][25]. Consequently, price fairness was proven to have its impact on purchase behavior [41][42]. Constraints of the kind also include the availability of SAF [12] and the possibility of locally sourced "locavore" channels [37][43][44][45][46]. To this end, as shown in **Table 1**, the study design consisted of three key factors (social norms, consumer awareness, structural constraints), and 11 sub-factors.

**Table 1.** Identification of factors to SAF consumption.

Key Factors	Sub-Factors	References
-------------	-------------	------------

Key Factors	Sub-Factors	References
Social norms	Health and safety	[1][5][7][12][27][28][29][33][47]
	Ecological concerns	[3][4][7][21][23][36][39][43][48][49]
	Social responsibility	[33][50]
	Tradition and region	[23][27][29][43]
Consumer awareness	Sensory pleasure	[3][23][29][43][47][51][52]
	Product quality	[3][43][47][50][51][52]
	Product understanding	[3][18][23][29][33][36][39][51]
	Product confidence	[3][11][33][39][45][50][53]
Structural constraints	Availability of products	[3][12][43][45][47]
	Acceptability of price	[18][23][33][43][47][48][50][52]
	Possibility of locavore	[43][44][46]

Considering possible solutions to the external hurdles that promulgate civic engagement for more sustainable consumption, the adaptation of policies to bolster SAF consumption would be considered effective actions. To address the development of SAF, Taiwan government has restructured its agricultural sector to ensure the competence of SAF supply. Major policy launched featuring the application of technological innovations in sustainable agriculture, ensuring the reduction of pesticides and the enhancement of the Certificated Agriculture Standard on food safety [54]. The French government centered its policy on sustainable management of agricultural benefits and food education [55]. Indeed, specific public policy options on building solid certification systems and the promotion of SAF education may result in positive feedback in terms of better understanding and trust in green products [13][23][38]. In addition, policy measures of socially responsible and eco-friendly initiatives from the manufactory side may concretely buttress the development of SAF production [9][46]. It will come as no surprise that the enacting of policies and services help build necessary SAF knowledge and trust in certification systems [17][56]. To envision a practical use of the research outcomes, we were also targeted at revealing consumers' perspectives on possible political enhancement to SAF consumption, with three most frequent mentioned factors from previous studies in this regard: the promotion of education and information, reinforcement of certification and inspection systems, incentive of eco-friendly initiative and social-responsible initiatives. References in this respect are shown in **Table 2**.

**Table 2.** Alternatives of political enhancement to SAF consumption.

Political enhancement	Promotion of education and information	[2][36][57]
	Reinforcement of certification and inspection systems	[2][11][23][29][36]
	Incentive of eco-friendly initiative and social-responsible initiatives	[7][22][48][49][52][56]

In sum, to regard consumers' perspectives toward sustainable agro-food purchasing requires examinations from distinguishing potential consumers' preferences on social norms, as well as the individual awareness on SAF consumption as the implicit motives, and additionally, to evaluate consumers' view on structural constraints and possible policy reinforcements as the explicit factors may identify consumer expectations on facilitators and barriers toward SAF consumption, reconnecting food producers and consumers. The improvement of SAF patterns is more likely to occur if coordinated and focused action from government, organization management as well as consumers and with the public integrated.

### 3. Cross-Cultural Comparison of Sustainable Agro-Food Consumption from Consumers' Perspectives: Cases from Taiwan and France

With eco-awareness growing, sustainable food consumption has received greater attention worldwide. The consumption rate of organic food and other sustainable food products is surging. Therefore, the challenge is how to accelerate this movement and generalize it to be attained in every corner of the world because maintaining sustainable food chains needs requires a global effort. This study is here to discuss the key components of a sustainable food consumption then evaluate them from the local consumers' perspectives, which are the final decision-makers for transforming their diet habits. Thus, personal value and perceived cognitions are extremely important from this point of view. Once buyers have an adequate understanding and knowledge towards sustainable foods or certification systems, it will increase their confidence in this genre of products. As previous studies have repeatedly stressed, consumers' positive attitudes over sustainable food products can be created through gathering information and trust.

Cross-cultural comparison is an essential element in our study; it shows the different development of the case areas and may be used as a blueprint for further investigations. However, when comparing two areas, the macro and structural factors must be considered because these are the elements that establish the society and shape the dissimilarities. The two factors interrelated and interconnected with each other, such as different agricultural contexts, vary people's diet habits and issues concerning them. Nevertheless, to find people's needs from a sustainable consumption standpoint is the ultimate goal. Once the future policy implications can fulfil citizens' real demands, it will be more efficient and favorable to facilitate a diet transition.

The results brought some important messages. For the principal factor, the factor of ideological trends is the most important consideration in both Taiwan and France, indicating that the importance of its sub-factors has also relatively increased. The importance of ideological trends mainly comes from the TRE and SOR related to personal values, public opinion, and society. Ideological trends are mainly recognized by female respondents in the survey distribution in Taiwan, while in France, they are mostly affected by the recognition of older people. For the sub-factors, the most important thing for both case areas is product accessibility, which is more valued by the public than TRR in sustainable food consumption. In addition, it can be found that health is relatively less important in the consumption of sustainable food. Considering the part of age analysis, social responsibility is gradually being valued with age. The health factor is that middle-aged people pay more attention to it than elderly people. The age groups in both case areas do not value product confidence related to product certification. In addition, almost all age groups in France attach importance to the price factor, especially men who are married or have an education level below high school. On the other hand, married men in Taiwan attach importance to product knowledge. For the policy alternatives, the three alternatives are equally important, while education and information is the highest in France. In terms of age analysis, France can strengthen the certification and inspection system for young people, which will have a better acceptance, while for the elderly, it is suitable to use education and information as the basis for the promotion of sustainable food consumption.

#### References

1. Helms, M. Food sustainability, food security and the environment. *Br. Food J.* 2004, 106, 380-387.
2. Kyrylov, Y.; Thompson, S.R.; Hranovska, V.; Krykunova, V. The World Trend of Organic Production and Consumption. *Manag. Theory Stud. Rural Bus. Infrastruct. Dev.* 2018, 40, 514-530.
3. Pomsanam, P.; Napompech, K.; Suwanmaneepong, S. Factors Driving Thai Consumers' Intention to Purchase Organic Foods. *Asian J. Sci. Res.* 2014, 7, 434-446.
4. Chinnici, G.; D'Amico, M.; Pecorino, B. A multivariate statistical analysis on the consumers of organic products. *Br. Food J.* 2002, 104, 187-199.
5. Asif, M.; Xuhui, W.; Nasiri, A.; Ayyub, S. Determinant factors influencing organic food purchase intention and the moderating role of awareness: A comparative analysis. *Food Qual. Prefer.* 2018, 63, 144-150.
6. Sanders, J.; Schmid, O. Organic Farming Policy in Action. Available online: [http://www.ifoam-eu.org/sites/default/files/page/files/ifoameu\\_policy\\_04\\_cap-book201403.pdf](http://www.ifoam-eu.org/sites/default/files/page/files/ifoameu_policy_04_cap-book201403.pdf) (accessed on 14 February 2020).

7. Teng, C.C.; Lu, C.H. Organic food consumption in Taiwan: Motives, involvement, and purchase intention under the moderating role of uncertainty. *Appetite* 2016, 105, 95–105.
8. Peano, C.; Merlino, V.M.; Sottile, F.; Borra, D.; Massaglia, S. Sustainability for Food Consumers: Which Perception? *Sustainability* 2019, 11, 5955.
9. Xia, W.; Zeng, Y. Consumer's Attitudes and Willingness-to-Pay for Green Food in Beijing. *SSRN Electron. J.* 2006.
10. Vázquez, M.S.; Rivera, J.; Conde, P.; Gutiérrez, M.; Díez, J.; Gittelsohn, J.; Franco, M. Social norms influencing the local food environment as perceived by residents and food traders: The heart healthy hoods project. *Int. J. Environ. Res. Public Health* 2019, 16, 502.
11. Tung, S.J.; Shih, C.C.; Wei, S.; Chen, Y.H. Attitudinal inconsistency toward organic food in relation to purchasing intention and behavior: An illustration of Taiwan consumers. *Br. Food J.* 2012, 114, 997–1015.
12. Paul, J.; Rana, J. Consumer behavior and purchase intention for organic food. *J. Consum. Mark.* 2012, 29, 412–422.
13. Wu, W.; Zhou, L.; Chien, H. Impact of Consumer Awareness, Knowledge, and Attitudes on Organic Rice Purchasing Behavior in China. *J. Food Prod. Mark.* 2019, 25, 549–565.
14. Vermeir, I.; Verbeke, W. Sustainable food consumption: Exploring the consumer "attitude - Behavioral intention" gap. *J. Agric. Environ. Ethics* 2006, 19, 169–194.
15. Li, R.; Lee, H.Y.; Lin, Y.T.; Liu, C.W.; Tsai, P.F. Consumers' willingness to pay for organic foods in China: Bibliometric review for an emerging literature. *Int. J. Environ. Res. Public Health* 2019, 16, 1713.
16. Govindan, K. Sustainable consumption and production in the food supply chain: A conceptual framework. *Int. J. Prod. Econ.* 2018, 195, 419–431.
17. Richter, I.; Thøgersen, J.; Klöckner, C. A Social Norms Intervention Going Wrong: Boomerang Effects from Descriptive Norms Information. *Sustainability* 2018, 10, 2848.
18. Lappalainen, R.; Kearney, J.; Gibney, M. A pan EU survey of consumer attitudes to food, nutrition and health: An overview. *Food Qual. Prefer.* 1998, 9, 467–478.
19. Cislighi, B.; Heise, L. Using social norms theory for health promotion in low-income countries. *Health Promot. Int.* 2019, 34, 616–623.
20. Higgs, S.; Liu, J.; Collins, E.I.M.; Thomas, J.M. Using social norms to encourage healthier eating. *Nutr. Bull.* 2019, 44, 43–52.
21. Magnusson, M.K.; Arvola, A.; Hursti, U.K.K.; Åberg, L.; Sjärdén, P.O. Choice of organic foods is related to perceived consequences for human health and to environmentally friendly behaviour. *Appetite* 2003, 40, 109–117.
22. Akkerman, R.; Farahani, P.; Grunow, M. Quality, safety and sustainability in food distribution: A review of quantitative operations management approaches and challenges. *OR Spectr.* 2010, 32, 863–904.
23. Hamzaoui-Essoussi, L.; Sirieix, L.; Zahaf, M. Trust orientations in the organic food distribution channels: A comparative study of the Canadian and French markets. *J. Retail. Consum. Serv.* 2013, 20, 292–301.
24. Validi, S.; Bhattacharya, A.; Byrne, P.J. A case analysis of a sustainable food supply chain distribution system - A multi-objective approach. *Int. J. Prod. Econ* 2014, 152, 71–87.
25. Thøgersen, J. Country differences in sustainable consumption: The case of organic food. *J. Macromarketing* 2010, 30, 171–185.
26. Veisi, H.; Liaghati, H.; Alipour, A. Developing an ethics-based approach to indicators of sustainable agriculture using analytic hierarchy process (AHP). *Ecol. Indic.* 2016, 60, 644–654.
27. Wandel, M.; Bugge, A. Environmental concern in consumer evaluation of food quality. *Food Qual. Prefer.* 1997, 8, 19–26.
28. Yiridoe, E.K.; Bonti-Ankomah, S.; Martin, R.C. Comparison of consumer perceptions and preference toward organic versus conventionally produced foods: A review and update of the literature. *Renew. Agric. Food Syst.* 2005, 20, 193–205.
29. Hocquette, J.F.; Jacquet, A.; Giraud, G.; Legrand, I.; Sans, P.; Mainsant, P.; Verbeke, W. Quality of food products and consumer attitudes in France. *EAAP Sci. Ser.* 2012, 133, 67–82.
30. Vázquez-Rowe, I.; Villanueva-Rey, P.; Moreira, M.T.; Feijoo, G. The role of consumer purchase and post-purchase decision-making in sustainable seafood consumption. A Spanish case study using carbon footprinting. *Food Policy* 2013, 41, 94–102.
31. Yu, S.; Lee, J. The effects of consumers' perceived values on intention to purchase upcycled products. *Sustainability* 2019, 11, 1034.
32. Salmivaara, L.; Lankoski, L. Promoting Sustainable Consumer Behaviour through the Activation of Injunctive Social Norms: A Field Experiment in 19 Workplace Restaurants. *Organ. Environ.* 2021, 34, 361–386.
33. Nasir, V.A.; Karakaya, F. Consumer segments in organic foods market. *J. Consum. Mark.* 2014, 31, 263–277.
34. Joshi, Y.; Rahman, Z. Factors Affecting Green Purchase Behaviour and Future Research Directions. *Int. Strateg. Manag. Rev.* 2015, 3, 128–143.
35. Kushwah, S.; Dhir, A.; Sagar, M. Understanding consumer resistance to the consumption of organic food. A study of ethical consumption, purchasing, and choice behaviour. *Food Qual. Prefer.* 2019, 77, 1–14.
36. Roitner-Schobesberger, B.; Darnhofer, I.; Somsook, S.; Vogl, C.R. Consumer perceptions of organic foods in Bangkok,

- Thailand. *Food Policy* 2008, 33, 112–121.
37. Bryła, P. Regional Ethnocentrism on the Food Market as a Pattern of Sustainable Consumption. *Sustainability* 2019, 11, 6408.
  38. Carfora, V.; Cavallo, C.; Caso, D.; DelGiudice, T.; DeDevitiis, B.; Viscecchia, R.; Nardone, G.; Cicia, G. Explaining consumer purchase behavior for organic milk: Including trust and green self-identity within the theory of planned behavior. *Food Qual. Prefer.* 2019, 76, 1–9.
  39. Teng, C.C.; Wang, Y.M. Decisional factors driving organic food consumption: Generation of consumer purchase intentions. *Br. Food J.* 2015, 117, 1066–1081.
  40. Oroian, C.F.; Safirescu, C.O.; Harun, R.; Chiciudean, G.O.; Arion, F.H.; Muresan, I.C.; Bordeanu, B.M. Consumers' attitudes towards organic products and sustainable development: A case study of Romania. *Sustainability* 2017, 9, 1559.
  41. Brons, A.; Oosterveer, P. Making Sense of Sustainability: A Practice Theories Approach to Buying Food. *Sustainability* 2017, 9, 467.
  42. Das, M.; Ramalingam, M.; Hyderabad, M.T. How effective are your actions? Impact of perceived consumer effectiveness on green purchasing behavior. *Acad. Mark. Stud. J.* 2019, 23, 1–8.
  43. Brown, E.; Dury, S.; Holdsworth, M. Motivations of consumers that use local, organic fruit and vegetable box schemes in Central England and Southern France. *Appetite* 2009, 53, 183–188.
  44. Thilmany, D.; Bond, C.A.; Bond, J.K. Going local: Exploring consumer behavior and motivations for direct food purchases. *Am. J. Agric. Econ.* 2008, 90, 1303–1309.
  45. Robinson, R.; Smith, C. Psychosocial and demographic variables associated with consumer intention to purchase sustainably produced foods as defined by the midwest food alliance. *J. Nutr. Educ. Behav.* 2002, 34, 316–325.
  46. Ilbery, B.; Maye, D. Food supply chains and sustainability: Evidence from specialist food producers in the Scottish/English borders. *Land Use Policy* 2005, 22, 331–344.
  47. Shepherd, R.; Magnusson, M.; Sjöden, P.O. Determinants of Consumer Behavior Related to Organic Foods. *Ambio* 2005, 34, 352–359. Available online: <http://www.jstor.org/stable/4315614> (accessed on 18 August 2021).
  48. Voon, J.P.; Ngui, K.S.; Agrawal, A. Determinants of willingness to purchase organic food: An exploratory study using structural equation modeling. *Int. Food Agribus. Manag. Rev.* 2011, 14, 103–120.
  49. Loureiro, M.L.; McCluskey, J.J.; Mittelhammer, R.C. Assessing Consumer Preferences for Organic, Eco-labeled, and Regular Apples. *J. Agric. Resour. Econ.* 2001, 26, 404–416.
  50. Wang, E.S.T.; Tsai, B.K. Consumer response to retail performance of organic food retailers. *Br. Food J.* 2014, 116, 212–227.
  51. Magnusson, M.K.; Arvola, A.; Koivisto Hursti, U.K.; Åberg, L.; Sjöden, P.O. Attitudes towards organic foods among Swedish consumers. *Br. Food J.* 2001, 103, 209–227.
  52. Huang, C.L. Consumer preferences and attitudes towards organically grown produce. *Eur. Rev. Agric. Econ.* 1996, 23, 331–342.
  53. Padel, S.; Foster, C. Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food. *Br. Food J.* 2005, 107, 606–625.
  54. Amesho, K.T.T. Taiwan's Agricultural Development Policy. Available online: [http://ap.ffc.agnet.org/ap\\_db.php?id=892](http://ap.ffc.agnet.org/ap_db.php?id=892) (accessed on 18 January 2020).
  55. The French Ministry of Agriculture and Food. Available online: <https://agriculture.gouv.fr/french-ministry-agriculture-and-food> (accessed on 10 March 2020).
  56. Thøgersen, J. How may consumer policy empower consumers for sustainable lifestyles? *J. Consum. Policy* 2005, 28, 143–177.
  57. Calafell, G.; Banqué, N.; Vicianá, S. Purchase and Use of New Technologies among Young People: Guidelines for Sustainable Consumption Education. *Sustainability* 2019, 11, 1541.

## Keywords

sustainable consumption; consumer perspective; agro-food chain; cross-cultural survey