SLU

FUTURE FOOD

Farm to Fork Strategy

– A consumer perspective

Fredrik Fernqvist | SLU Future Food

SLU Future Food Reports 16:3 | 2021

Farm to Fork Strategy
– A consumer perspective

Author: Fredrik Fernqvist
Publication: SLU Future Food Reports 16:3
Release year: 2021, Uppsala
Publisher: Sveriges lantbruksuniversitet, framtidsplattformen SLU Future Food
Layout: Karin Jonsell, SLU Future Food

ISBN number: 978-91-576-9879-7 (elektronic), 978-91-576-9880-3 (printed)

SLU Future Food

SLU Future Food is a platform at the Swedish University of Agricultural Sciences for research and collaboration to develop knowledge, solutions and innovations for a economic, ecological and social sustainable food system.

www.slu.se/futurefood
SLU Future Foods nyhetsbrev
@SLUFutureFood
Feeding your mind
futurefood@slu.se

SLU
SCIENCE AND EDUCATION FOR SUSTAINABLE LIFE

Summary

The Farm to Fork Strategy has two opposite goals: One is increasing the farmer incomes and the other is to make affordable, healthy and sustainable food available for all. It is necessary to take into consideration the complex dynamics of the whole supply chain food to be able to put forward solutions addressing this.

Several challenges are discussed in this report, as well as potential conflicts of interest. There are many possible synergies in illuminating sustainability issues from several perspectives. From a research perspective this would mean working more in interdisciplinary teams. It would likely need to include participatory approaches together with actors from the whole supply/value chain, including the involvement of consumers. Not only to be able to solve practical problems, but also increase the flow of knowledge and information in any direction. It will require a variety of research methods from several disciplines, bot qualitative and quantitative approaches. Having a food system perspective could also help in working with the challenges, but we also must also realise that there are always resource constraints and we cannot do all at once.

The Farm to Fork Strategy is somehow limited with what it addresses. It addresses issues related to sustainability, both on the production and consumption side. It addresses the need for action. But the body of proposed actions is actually rather meagre (well, if it is result of negotiation between different parties, that is perhaps not so surprising). The focus is on a need to produce food more sustainable, introduce new technologies, to promote sustainable food towards the consumer and "foster" it to make the right choices. Price of food should also be just about right for both farmers and consumers. Issues as health, food waste, environmental impact, and so on, are lifted. It is somehow bothering that consumer behaviour, and how to influence the consumers' behaviours, is simplified in this context. This also regards the lack of addressing the behaviours among other actors in the food value chain.

There are many questions that arise: How should farmers, managers and businesses improve their processes to better work with the sustainability challenges? How can they increase the degree of innovation? How can they meet changing market demands and adopt to a changing market? How can and should they act in a dynamic food system? How will knowledge and technology spread in a more efficient way than today? How the supporting systems (for example innovation and knowledge systems) support change towards increased sustainability? How can we change current norms and conventions that possibly put restraints on the sustainability transition? Many more gaps may be found, and just the occurrence of all questions show how complex it is. The strategy mainly focuses on the questions of what and why, but less on how to do it. But with the new Horizon Europe programme, many opportunities arise to research on it and increase our knowledge on how.

Solutions for a more sustainable food system must most likely be developed through collaboration, including actors from the whole value chain, include consumers in the process, taking knowledge from multiple disciplines in science and make a joint effort to try to solve a very complex problem. The process of 'muddling through', as described by Lindblom (1959), perhaps best describes the work ahead.

Alnarp, 2021
Fredrik Fernqvist
Department of People and Society, SLU

Introduction

The European Union (EU) Farm to Fork Strategy (F2F) is a part of the EU: European Green Deal, addressing the challenges of sustainable food systems (European commission, 2020). The strategy aims at recognizing the inextricable links between healthy people, healthy societies and a healthy planet. From a consumer perspective it highlights the importance of enabling and empowering
the consumer to make healthy and sustainable food choices and stress the role of actors in the food chain in supporting a more sustainable food consumption and food system. The strategy underlines that actors in the food system should see the implications pointed out in it both as a responsibility and an opportunity.

The Farm to Fork Strategy is a call for action, and it points out that a sustainability transition of the food system will not happen without a shift in people's diets. It means that it is essential to take action to change consumption patterns and to curb food waste. It proposes that consumers want to feel closer to their food and that they want fresh, less processed and sustainably sourced food and that the current Covid-19 crisis has increased the interest for shorter supply chains.

This reflection paper discusses the Farm to Fork in light of the role of consumers, and their behaviour, in the transition towards a more sustainable food system. The aim is to identify complex challenges, trade-offs between different goals revealed in the strategy, and possible synergies between them.

The consumer perspective in the Farm to Fork Strategy

Food consumption appears at the end of the food value chain, where a line of actors delivers the food from farm to fork. From a food system perspective, activities follow this line of actors until the last actor in the chain – the consumer. Ultimately, produced food is eaten. If not eaten, wasted. In the best case, food waste is recirculated into the food chain again, or eventually used for other purposes.

One of the strongest drivers influencing the food value chain, or the activities taking place in the food system, ought to be the market it is produced for – the consumers that decide what and how to eat the produced food. In food and agriculture, food value chains (for example FAO, 2014) or food supply chains (for example Mena & Stevens, 2010) commonly are used for describing the chain of activities along a line of actors from farm to fork. A value chain refers to different actors conducting activities in a network responding to consumer demands (Gereffi & Kaplinsky, 2001; Donovan et al., 2015) and can be seen as a business system creating end-user satisfaction, or values, realising system stakeholders' objectives of maximising value creation (Walters & Lancaster, 2000). A limitation with the linear food chain models, however, may be that they lack considerations of influences from or impacts on the outside the chain (Sobal et al., 1998). The food systems approach (for example Ericksen, 2008; Ingram, 2011) is an alternative model that has been used for studying multiple interactions of food systems in the perspectives of global environmental change societal outcomes. The model shows on the one hand how activities in the food system aiming for providing food generates outcomes (food security, social, economic and environmental welfare) which influences the external environment, and in turn becomes drivers to the food system, closing the loop (Figure 1). As an example, the agricultural sector is a significant contributor to climate change, but also significantly affected from it. The food system encompasses the entire range of actors and their activities and these are related to the broader economic, societal and natural environments in which they are embedded (FAO, 2018).

Combining the food systems approach with an outlined value chain (Graef et al., 2014; Bokelmann et al., 2016), the interrelation between food system activities, their outcomes, and their social, economic and environmental feedbacks to the external environment can be depicted (Figure 1). Food consumption can be seen as the final destination of the food chain,

The European Union Farm to Fork Strategy

The European Union Farm to Fork Strategy underlines various actions to influence food consumption in a more sustainable direction through assisting and helping consumers to make informed and beneficial food choices. The strategy also aims at making production and products offered to the consumers more sustainable, whereas producer incomes and sustainable livelihoods for farmers should be ensured. This is intended to be achieved through a "technology push" for more sustainable production and a "market pull" effect through increased consumer awareness and willingness to pay for more sustainable food, practically through changing consumer behaviour and demand.

Box 1: The Farm to Fork Strategy.

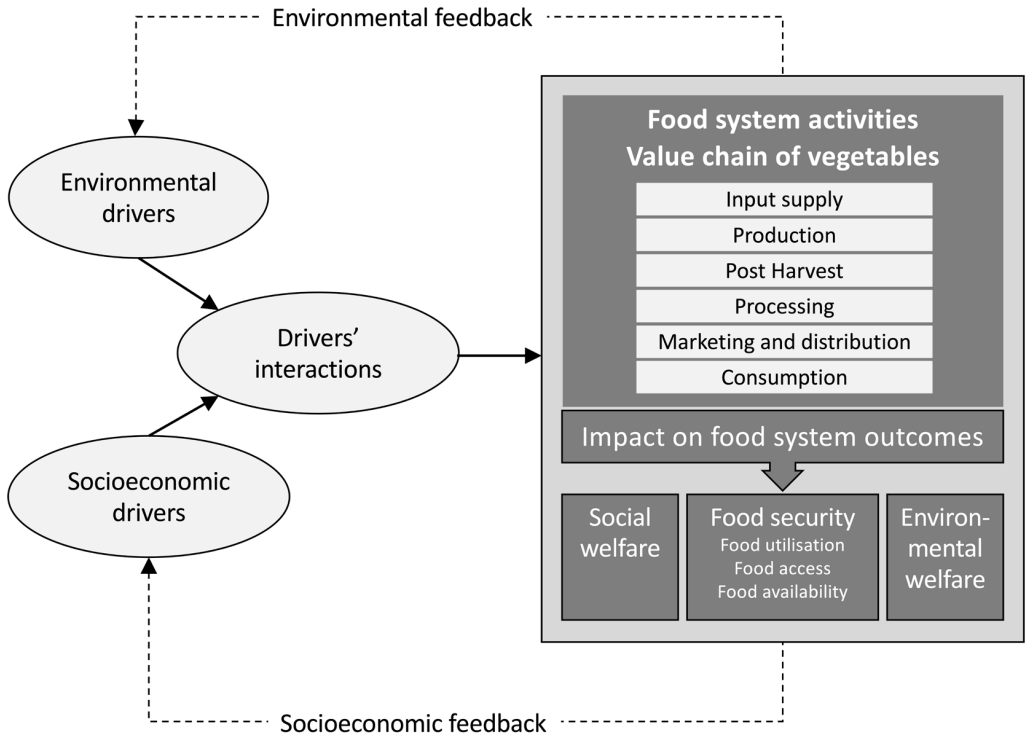

Figure 1: Overview of the combined value chain and food systems framework, the example of the vegetable value chain. Based on Ericksen (2008), Ingram (2011), Bokelmann et al. (2016). From: Fernqvist & Göransson (2021).

and the food system represents all activities aiming for producing and consuming food. Food consumption and consumer demand, as well as distribution and trade are also some of the main drivers for the whole system (Bené et al., 2019). Changing consumer demand and consumption patterns in a more sustainable direction, thus, is a key concern for a sustainability transition in the whole food system as it tentatively also will influence all previous steps of the chain.

Following the European Union's goals to reduce environmental and climate footprint and lead the transition towards competitive sustainability from farm to fork, this, according to the Farm to Fork Strategy, mean that:

- The food chain (from production to consumption) should have a neutral or positive environmental impact
- Everyone should have access to sufficient, nutritious and sustainable foods while meeting dietary needs and food preferences, and
- The most sustainable food should also become the most affordable (Farm to Fork Strategy, p. 7).

Thus, the consumer side of the food value chain is covered by the objective to improve the availability and price of sustainable food and to promote healthy and sustainable diets. It is ascertained that current food consumption patterns currently are unsustainable from both health and environmental points of views. Ensuring food security, implying access to sufficient nutritious and sustainable food, while also making the most sustainable food the most affordable is a main objective pointed out in the strategy, emphasising that more than 30 million people in the European Union cannot afford a quality meal every second day.

But just as the goal of affordable, healthy and sustainable food for European consumers is a centrepiece in the Farm to Fork Strategy, securing fair and stable incomes for farmers is another. The latter goal is in line with one of the primary ambitions of the European Union Common Agricultural Policy (CAP): Securing a fair deal and a stable economic future for farmers (European Commission, 2021), in particular for those primary producers lagging behind in terms

of income. Perhaps needless to say, these primary goals may conflict with each other. Add to this the dimension that internalisation of current external costs (actually paying for the real costs in form of for example climate impact, biodiversity losses, environmental degradation, erosion et cetera), and there would possibly be considerably higher prices of food. Reaching all goals represent a great challenge given the trade-offs between different goals that may occur.

Decreasing food prices in the European Union has given consumers better (cheaper) access to food. In the Swedish context, trade with food and agricultural commodities have significantly increased since Sweden joined the European Union in 1994 and food prices have even decreased in relative terms (SJV, 2014). The decrease of prices on agricultural products follows a similar pattern in many countries and may be due to a transformation into fewer, larger and more specialised agricultural enterprises. From a European perspective, Bowler (1986) associated these changes in the farm sector with the processes of intensification, concentration and specialisation but also greater structural rigidity, although environmental problems may have worsened in some rural communities. Drivers of this development has been described as related to technological innovations, which have resulted in increased productivity, but also in changing consumption patterns and the development of global markets for agricultural commodities (Dimitri et al., 2005). But as the development has gone towards lower prices, these have also contributed with relatively lower incomes for farmers where economics of scale is key to reach farm profitability in many cases. Of course, there are exceptions, but many small farmers have difficulties in competing on the market. This is perhaps the main driver for the structural rationalisation in agriculture, as well as it is for more or less innovative policies aiming at supporting a generally unprofitable farm sector. Another aspect is also the increasing market concentration in other stages in the food value chain: Suppliers, buyers, food industry and retailers, have become increasingly concentrated to fewer actors (Howard, 2008). In addition, there has been an increased vertical integration (Murphy, 2008; Sexton, 2000), where often the retailer exercise power upstream the value chain. Consumers have partially benefitted from the development with cheaper food, but are similarly increasingly dependent on a few strong retailers.

It is necessary to take into consideration the complex dynamics of the whole supply chain food to be able to put forward solutions addressing the two opposite goals of increasing farmer incomes and to make affordable, healthy and sustainable food available for all. Tentatively, farmer incomes and consumers' access to affordable and sustainable food are conflicting goals. In addition, market structure may have created lock-ins, in that the stronger actors set the agenda for the weaker actors in the value chain.

The two opposite goals in the European Union Farm to Fork Strategy

Higher incomes to farmers and affordable, healthy and sustainable food for consumers is a complex challenge. Agriculture has since the green revolution been characterised by processes of intensification, concentration and specialisation. The process has been driven by technological developments resulting in increased productivity, but also in changing consumption patterns and the development of global markets for agricultural commodities. The actors in the supply chain (input suppliers, wholesales, food industry, retail) have increasingly concentrated to fewer actors and economics of scale has been the main driver for the development. The structural development has put farmers, in particular smaller ones, in a weak position in relation to the other actors in the supply chain. Consumers have partially benefitted from the development with cheaper food, but are similarly increasingly dependent on a few strong retailers. It is necessary to take into consideration the complex dynamics of the whole supply chain food to be able to put forward solutions addressing the two opposite goals of increasing farmer incomes and to make affordable, healthy and sustainable food available for all.

Box 2: The two opposite goals in the European Union Farm to Fork Strategy.

The Farm to Fork Strategy points at alternative sales channels or food-networks as possible paths for producers to increasing their revenues as well as for filling the demand for (some) consumers to be more involved in the food system and participate in the food system transition towards sustainability. Producer prices may increase with added values, such as animal welfare, organic production methods, high quality and craftmanship, Also, closer relations between producers and consumers may increase consumers' willingness to pay for their food. But the groups of consumers highly involved in these practices are probably not a major part of the total food market. Still, for those 30 million households not affording daily healthy meals, price will most likely be one of the strongest factors guiding their choice of food.

Alternative forms of collaboration in the value chain, alternative sales channels, improved production systems, new technologies et cetera may contribute with solutions for both reaching the goals on the production as well as on the consumption side of the value chain. It is a complex challenge, which calls for interdisciplinary research and collaboration with all stages of the value chain. This explains why the new Horizon Europe framework and the cluster 6 work programme 2021–2022 stress that consumer perspectives and involvement with value chain actors are important in upcoming research projects in the area of 'food, bioeconomy, natural resources, agriculture and environment'.

Building the food chain that works for all

A first reflection on what is included in the Farm to Fork Strategy's proposals for action for a more sustainable food system is that it relies on "the good will of all system actors" and the legal proposal for a framework for a sustainable food system address the responsibilities of all actors in the food system. The Farm to Fork Strategy points out that "combined with certification and labelling on the sustainability performance of food products and with targeted principles, the framework will allow operators to benefit from sustainable practices […]" (p. 8). Secondly, the strategy stresses the importance of information and communication towards the consumers.

To begin with, actors in the whole food system must take action towards increased sustainability and the consumer must be considered in all steps, as they ultimately make a purchasing choice. The Farm to Fork Strategy underlines that "food processors, food service and retailers shape the market and influence consumers' dietary choices through the types and nutritional composition of the food the produce, their choice of suppliers, production methods and packaging, transport, merchandising and marketing practices" (p. 13). That mean, the behaviours of actors in the food value chain do influence consumer behaviour. Therefore, they must take responsibility by changing their practices. Thus, the Commission seek commitments from food companies and organisations to take action – that is by focusing on "reformulating food products in line with guidelines for healthy, sustainable diets; reducing their environmental footprint and energy consumption […]; adapting marketing and advertising strategies taking into account the needs of the most vulnerable; ensuring that food price campaigns do not undermine citizens' perception of the value of food; and reducing packaging […]" (p. 13). For example, the strategy points out that marketing campaigns advertising meat at very low prices must be avoided. The Commission will also "seek opportunities to facilitate the shift to healthier diets and stimulate product reformulation, including by setting up nutrient profiles to restrict the promotion (via nutrition or health claims) of foods high in fat, sugar and salts" (p. 13). The meaning in practice is that the food offered can be both healthier and more sustainable, but it also requires to align towards the consumers so that they would accept the food and actually choose the more sustainable and healthier alternative in a purchasing situation.

It also occurs that the European Union is willing to make policies in the way food is marketed, and eventually also consider tax incentives to drive the transition to a sustainable food system and encourage consumers to choose sustainable and healthy diets. Another aspect, important from the consumer perspective, is that food safety is indicated as a priority. The Farm to Fork Strategy put forward that "new innovative techniques, including biotechnology and the development of bio-based products, may play a role in increasing sustainability, provided that they are safe for consumers and the environment while bringing benefits for society as whole" (p. 10). It further notes that food fraud must be combated, as it deceives consumers and prevents them from making informed choices. The issue is that fraud "undermines food safety, fair commercial practices and the resilience of food markets" (p. 15).

Common denominators of the Farm to Fork Strategy's propositions are: firstly, that the food compositions can be both healthier, more sustainable and (hopefully) attractive for the consumers and that research and development on the production side should focus on these issues. Secondly, that there is a strong belief that information, communication and marketing will convince consumers to change their behaviours. If the consumers only are well informed, they will make the right decisions.

The Farm to Fork Strategy contains multiple examples:

- The Farm to Fork Strategy mean that *"combined with certification and labelling on the sustainability performance of food products and with targeted principles, the framework will allow operators to benefit from sustainable practices […]"* (p. 8).
- The Farm to Fork Strategy points out that better animal welfare is a priority and that *"it is clear that citizens want this"* and further stress that *"the commission will [also] consider options for animal welfare labelling to better transmit value through the food chain"* (p, 10).
- Organic food is to be promoted, as *"consumer(s) recognise its value"* (p. 10) and an *"Action Plan on organic farming will help member states to stimulate both supply and demand for organic products [and] ensure consumer trust and boost demand through promotion campaigns and green public procurement"* (p. 10).
- The commission will *"revise marketing standards to provide for the uptake and supply of sustainable agricultural, fisheries and aquaculture products and to reinforce the role of sustainability criteria taking into account the possible impact of these standards on food loss and waste. […] It will strengthen the legislative framework on geographical indications [that is certifications and labels] and, where appropriate, include specific sustainability criteria. "* (p. 14).
- Promotions of healthy diets will be made. The Farm to Fork Strategy mean that… *"to empower the consumer to make informed, healthy and sustainable food choices, the Commission will propose harmonised mandatory front-of-pack nutrition labelling and will consider to propose the extension of mandatory origin or provenance indications to certain products […]"* (p. 14).
- The strategy *"will also examine ways to harmonise voluntary green claims and to create a sustainable labelling framework that covers, in synergy with other relevant initiatives, the nutritional, climate, environmental and social aspects of food products. The Commission will also explore new ways to provide information to consumers through other means including digital, to improve the accessibility of food information in particular for visually impaired persons"* (p. 14).

The roles of information towards and communication with consumers appear to be central in the Farm to Fork Strategy. Altogether, a main impression of the strategy's proposal is that if food products are sustainable and this is communicated successfully towards consumers, the willingness to pay will increase and revenues throughout the value chain will increase and this opportunity will be recognized by all system actors and everyone will be better off. The primary idea is to rely on suitable labels and certifications that would encapsulate the value(s) to be communicated, and the consumers will change their purchasing behaviour when they have been properly informed. What could ever go wrong?

The first concern to raise could be that the flow of information in the Farm to Fork Strategy proposals is one-directional. It does not include information from the other direction: what do consumers really want, and what would really make them change into more sustainable food behaviours, how is value co-created, how do information flow between the different actors in the chain? The second concern is that, although information is important to the consumer, most food choices are simplified in different ways and in a real purchasing situation all information cannot be considered. The consumer does meet a large amount of information in the purchasing environment, not to say how much they access in their daily life through various communication channels.

As discussed by Jacoby (1984), consumers can be overloaded with information, but they will actually not be overloaded "because they are highly selective in how much and just which information they access, and tend to stop well short of overloading themselves" (p. 435). The consequence is that the more difficult and time-consuming it is to handle the information, "it less likely that the consumer will attend to some critical information" (Jacoby 1984:435). Consumers generally rely on some specific search cues when deciding on what to choose and develops strategies to simplify choices. Will they select the pieces of information, signalled through labels and certification, proposed by the European Union?

On the complexity of food choice

Consumer demand is explained as consumer wants backed up by purchasing power, or willingness to pay. Consumer want, in turn, is the particular form of consumption chosen to satisfy a need, which is culturally and individually determined (Solomon, et al., 2006). A basic physiological need such as eating food, thus, does not necessarily mean that all consumers want or have the motivation to eat the same food. Choices may depend on individuals' food habits, food culture, or many other variables. Additionally, eating food may fill many different types of needs. The need for consumption may be utilitarian (objective and tangible attributes of products) or hedonic (subjective and experimental) (Solomon, et al., 2006). Following Maslow's (1943) hierarchy of needs, the most basic needs are the physiological needs for surviving, whereas the top of the hierarchy would be the need for self-actualisation. Food may meet needs at any stage.

We eat throughout the days and throughout our lives and we eat for many different reasons. Our food consumption and choices are shaped by our culture, family and social peers, personal preferences, economic conditions, food availability, marketing, and much more. The theory of reasoned action (Fishbein & Ajzen, 1975) and planned behaviour (Ajzen, 1991) assumes that people make rational decisions based on unconscious deliberation (Köster & Mojet, 2007). But food behaviour often become habitual, and given the limited time we have, food choices need to be rationalised and simplified – a case of heuristics. Heuristics, or mental short cuts, have been shown to play an important role in food choice and it is widely agreed upon that many food choice decisions are likely to be based on simplifying rules. Conner (1993) suggested that the most readily accessible concept(s) will be used to make decisions, while previous consumption is a strong independent predictor of future consumption overwhelming other predictors. Food behaviour tends to be rather consistent over time and rarely takes whole new directions, and when it does, it often coincides with major changes in our lives, such as in transition between stages in the life course (Kemmer et al., 1998; Devine, 2005). Examples of such transitions are when moving from the parental home, when moving together with a partner, when children are born into the household, or when they leave home.

Hence, habitual behaviour strongly influences intentions to consume food, and repeat purchase of everyday food products could be carried out with little awareness (Grankvist & Biel, 2001). Shulte-Mecklenbeck et al. (2013:242) expressed it as "people make their food choices on the basis of simple and informationally frugal heuristics" and that people lack the available time, motivation and computational resources to evaluate each purchase. This may be one reason to why public campaigns directed towards changing behaviour through changing attitudes by means of persuasive communication (for example to change behaviour towards more healthy food) often fails (for example Rekhy & McConchie, 2014).

An alternative to break undesirable habits instead is, if possible, to replace them with a new behaviour (Honkonen, et al. 2005), a task that will not be accomplished with even more pieces of information directed towards the consumer. Food labels comprising several elements of information (for example an organic label) and easily accessible information (on for example nutritional scoring) could facilitate consumer choice, as pointed out by Shulte-Meklenbeck et al (2013). But although there is plentiful of research on the role of information in consumers' food choices and that choices may be influenced by information in experimental settings, the real purchasing situation, including context, timing, purchasing motives et cetera, makes it difficult to say that solely information or labels will influence the actual choice. From a research perspective, this points at the need to combine several research approaches and methods from multiple disciplines

to even better understand consumers' behaviour and facilitate changes in a more sustainable direction. But it could also be that an alternative to labelling is to nudge the consumer in various ways (see. for example Thaler & Sunstein, 2008), not the least through developing attractive products that contains the right characteristics (nutritional properties, low environmental and climate impacts et cetera), combine it with the right marketing measures, and assess consumers' post-purchase behaviour (not the least to address the issues of food waste taking place in the households). Again, follow the value chain and find the most viable options to form the sustainable food of the future.

Challenging goals in the Farm to Fork Strategy

One of the goals adhering to the European Union Farm to Fork Strategy [2.4. Promoting sustainable food consumption and facilitating the shift to healthy, sustainable diets] appear to be challenging to achieve – namely that consumers should be empowered to make informed, healthy and sustainable food choices, and that the commission will put efforts in exploring new ways to provide information to consumers. Increasing the amount of information probably would not make consumers' choices better or more thought through. However, the ambition to develop certification and labelling on for example the sustainability performance of food products could be a feasible path to facilitate and simplify consumer food choice. In these two goals there may be both a conflict between goals but also a possible synergy. Additionally, reformulating food products in line with guidelines for healthy, sustainable diets, yet another of goal in the strategy [2.3. Stimulating sustainable food processing, wholesale, retail, hospitality and food services practices], in accordance with current food consumption patterns, for example following the principles of 'nudging', would tentatively be a faster way for facilitating a shift towards a more sustainable consumption.

Box 3: Challen goals in the European Union Farm to Fork Strategy.

Food choice explained

There are some major and commonly cited conceptualisations, or models, on food choice that explain the complexity in food choice. They have in common that they consider personal factors as well as socio-cultural factors, and that incoming stimuli, whether they are intrinsic or extrinsic properties of the product, is processed by the individual before making an intended choice. This follows generally the model of the consumer decision process. To understand consumer behaviour, we must also understand consumers as social beings, their group belonging and influences, and their social behaviour. To go in depth into the issue of food choice is an extensive task and there are many conceptualisations on how to describe it.

Shepherd (1989) take on to an approach to model food choice via an understanding of people's beliefs and attitudes. According to his model, psychological factors, economic and social factors, together with the perception of sensory attributes leads to attitudes, which jointly with mere physiological effects of food, are decisive for the final food choice. Furst et al. (1996) grouped factors involved in food choice into three major components: life course, influences and personal system. The life course includes the personal roles and the social, cultural and physical environments. This influences ideals, personal factors, resources, social framework and food context (for example setting). These, in turn, influence and shape people's personal systems including conscious negotiations and unconsciously operationalised strategies, aspects related to for example sensory perceptions, monetary considerations, convenience, health and nutrition, quality and relationships. Altogether, internal negotiations lead to strategies, which are fairly stable over longer periods of time, food choice and behavior. Sobal and Bisogni (2009) further introduced to Furst et al. (1996), food behaviours encompassing acquirement and post-purchase behaviours leading to new influences to the life course. A third model conceptualized by Brunsø, Fjord and Grunert (2002) focuses on the role of quality in preference formation, intention to buy and future purchases. The concept of quality here is implied to be essential to food choice, as it has a double effect – sensory experiences of food is affected by personal beliefs, attitudes and values, and expected quality have an effect on food choice and purchase decision. Deriving the main basic elements from these three frameworks, Table 1 provide a summary of in seven broader categories.

As can be derived from the overview, the role of available information is only one piece of the actual choice. Generally, sensory appeal (for example taste) and health is ranked highest in consumers' choice of food (for example Steenhuis et al., 2011) followed by price. It is rather clear that price is an important factor in food choice, especially for low-income consumers (ibid.). In the case of organic food, another practice the Commission wish to promote, it has been found that low-income consumers are more price sensitive (Thørgersen et al., 2019) and price has been considered a main obstacle for consumers in the decision to purchase organic food (Melovic et al., 2019). Clearly there is a trade-off between affordability and sustainability values.

Tabell 1. Basic elements in consumer food choice. Derived from three main theoretical conceptualisations.

Basic element	Food, person, economic and social factors (Shepherd, 1989))	Life course and personal system (Furst et al., 1996)	Before and after purchase (Brunsø et al., 2002)
1) Physical product	▪ Physical properties ▪ Chemical properties	Quality	▪ Technical product specifications ▪ Sensory characteristics
2) Sensory perceptions	Perception of sensory attributes	Sensory perceptions	Expected and experienced quality (taste)
3) Personal factors	▪ Psychological factors ▪ Mood ▪ Experiences ▪ Attitudes ▪ Beliefs	▪ Life course ▪ Personal system ▪ Value negotiations	Implicitly assumed. Individually perceived ▪ Intrinsic quality cues ▪ Extrinsic quality cues
4) Context	▪ Economic factors ▪ Social factors ▪ Cultural factors	Food context	▪ Shopping situation ▪ Meal preparation situation ▪ Eating situation
5) Available information	▪ Availability ▪ Brand	Not applicable (part of value negotiation/ considerations)	▪ Intrinsic quality cues ▪ Extrinsic quality cues
6) Price	Price	Monetary considerations	▪ Cost cues ▪ Perceived cost
7) Consumer response	Food choice	Choice	▪ Intention to buy ▪ Future purchase

What does the consumer want?

Sustainability, health and price are not the only wanted characteristics of food – other wants may also influence future directions. The Farm to Fork Strategy point out that current food consumption patterns are unsustainable from both health and environmental points of views. Consumers' intake of 'unhealthy food' increases, whereas 'healthy food' intake (of for example fruit, vegetables and legumes) is insufficient. The European Union wants to encourage consumers to choose sustainable and healthy diets. If we only wanted sustainable and healthy food, our consumption patterns would look different.

The case of affordability of heathy food is essential in providing food security for people, but healthier products are often associated with higher prices. Price, as described, is an utterly important parameter. Fielding-Singh (2017) showed that low-income consumers were are likely to purchase less costly, energy-dense and nutrient-poor products amid household financial constraint.

There are other strong developments that needs to be considered in the development of future food products. One is a development that unfortunately also has brought us less healthy and less sustainable food. Ever since the 1950–60's, or even earlier, there has been a strong trend towards increased demand for convenience food. The market development of fresh table potato and substituting potato products such as chips and crisps is a significant example of this so-called 'convenience trend' where unhealthy alternatives have taken market shares from the healthier alternative. The unhealthy convenience alternatives have also been cheaper. Could the issue of consumers' convenience and demand for convenient products be important in relation to the European Union Farm to Fork Strategy?

Awareness of long-term developments of the food market is of importance for understanding in which direction consumption is changing, to be able to serve the market with the right offerings, but also to facilitate changes in a more sustainable direction. The convenience trend, as an example, is one of the most influential developments on the food market together with (actually) increased health concerns, and interest in process characteristics related to for example organic production, local production, animal welfare and sustainability (Grunert, 2013).

These long-term developments were identified already in the 1980's and Senauer (1989) described convenience, changing eating patterns (lesser regular meals at home) and an increased interest in food safety, nutrition and health as influential drivers, but also a trend with fewer and bigger supermarkets and the introduction of more new products in a description of the development of the American food market. The latter development corresponds with an increased demand for variety and new experiences as mentioned by Grunert (2006). Only recently, we have seen an increasing sustainability trend (Brohm and Domurath, 2017) and an 'authenticity' trend (Petz and Haas, 2017), with consumers being increasingly interested in the origin of their food. All of these aspects are of relevance when forming future food products and the marketing of them.

Whereas the consumption of 'unhealthy convenience food' has increased, the prices for it has decreased – partially a consequence of the previously described development in market structure. 'Healthy convenience food' remains a costly product in stores' shelves, and has become a new high-margin niche for retailers and other actors targeting mainly urban consumer groups with higher incomes and higher education levels (also a case pin-pointing the socio-economical perspectives in consumer choice). 'Healthy convenience' is a major driver in the development of retailers' fruit and vegetable category, bringing increasing values of sales and opportunities for producers and other actors in the food value

chain (Fernqvist & Göransson, 2021), but inconveniently not affordable for all.

Taking just these, three, central consumer wants: that the food should be healthy, convenient and preferably available to a not to a too high price (that is being affordable), we get an 'impossible triangle'. You can get two, but not all three components (Figure 2), there is always a trade-off. It is possible to get healthy and convenient food, but to a high price. It is possible to get affordable and convenient food, but it would (probably) not be healthy. It is possible to get healthy and fairly cheap food, but it would not be very convenient. Time restraints and other issues in peoples' lives delimits the possibilities, or want, to spend too much time cooking – that's one reason why 'unhealthy convenience' rules if you don't have the means to purchase the healthier alternative. A real challenge is how all three can be achieved and whether all the actors in the supply chain would support it. Will information on sustainability or health increase the willingness to pay for healthy convenience? Possibly, but not probably. Perhaps taste is more important, or a lower price? Could we just decrease the price on healthy convenience? Well, ask the retailers.

An option is, of course, to implement new policies to influence prices. The Commission has proposed that VAT rates could allow member states to make more targeted use of rates for example to support organic fruit and vegetables, and the European Union tax system could ensure that the price of foods reflects their real costs in terms of use of finite natural resources, pollution and other environmental externalities (p. 15). But there is always a risk that food prices will rise, and that in particular the more 'profitable' products will follow the general price development upwards.

The example shows that sustainable, healthy food, and attractive in many other ways, to a low price aimed for all consumers can be difficult to achieve if to reach both increased profitability for farmers and maintain profits at all other stages in the value chain. It shows that the dynamics within the whole chain is complex, and that there are no simple solutions. We can add even more characteristics: the heterogeneity of consumers, different contexts, various environmental impacts, et cetera.

But there is also current development where we see many new types of foods entering the market. Several different actors, among them retailers, established food industry and many start-ups in the industry, work with the development of, for example, plant-based proteins as alternative to meat. Possibly these are better for both health and climate. And although prices may initially be high, up-scaling of food-processing facilities, technological development and increased production of, for example legumes, in the stage of primary production leads to decreased costs.

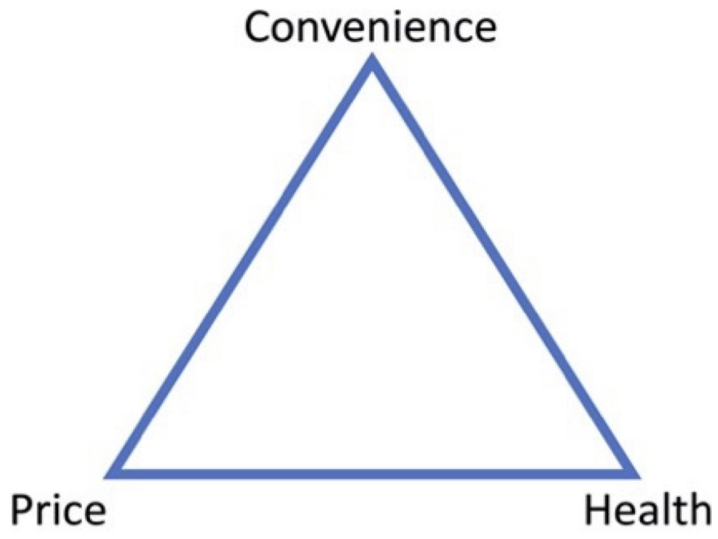

Figure 2: The impossible food triangle?

Table 2. Vegetarian alternatives in retail (prices and pictures retrieved 20 May, 2021).

	Item A	Item B	Item C
Type	Vegetarian mince	Vegetarian mince	Vegetarian meat balls
Brand	Hälsans kök	Garant	Dafgårds
Retailer	Ica (online)	Willys (online)	Coop (online)
Price	94.88 SEK/kg	58.71 SEK/kg	77.90 SEK/kg

Also, retailers do work with introducing novel foods with 'better' pricing towards the consumer. In a Swedish context, all larger retailer chains make efforts to introduce such alternatives as shown in Table 2. The price of "vegetarian mince" now ranges between 58–94 SEK/kg to be compared with the cheapest meat alternative (pork mince, approximately 56 SEK/kg). It is likely that the prices of healthy and more sustainable alternatives still can get lower, while the convenience factor and consumer recognition also is in place.

Perhaps the impossible food triangle is not so impossible after all? Making novel products similar to existing alternatives, an effect of nudging, slightly pushing the consumer in an alternative direction of consumption with simpler choices could provide a viable way forward. Thus, consumption may be more likely to be changed not with public campaigning calling for more sustainable consumption, but by making choices simple. Could it be that consumer patterns slowly are about to change in an "organic way" and that the market actors adopt to and promote it, without the need for hard policy measures (for example though introducing punitive taxes)?

References

Ajzen, I. (1991) The theory of planned behaviour. Organizational Behavior and Human Decision Processes 50(2):179–211.

Bené, C., S.D. Prager, H.A.E. Achicanoy, P. Alvarez Toro, L. Lamotte, C. Bonilla Cedrez, B.R. Mapes. 2019. Understanding food system drivers: A critical review of the literature. Global Food Security 23: 149–159.

Bokelmann, W. & Adamseged, M.E. (2016). Contributing to a better understanding of the value chain framework in developing countries. Proceedings of the 5th international Conference of the African Association of Agricultural Economists, September 23–26, 2016, Addis Ababa, Ethiopia.

Bowler, I.R. (1986). Intensification, concentration and specialisation in agriculture: the case of the European Community. Geography 14–24.

Brohm, D. & Domurath, N.. (2017). The sustainability trend. In: Consumer trends and new product opportunities in the food sector, edited by K.G. Grunert. Wageningen Academic Publishers, Wageningen, pp. 33–41.

Brunsø, K., Ahle Fjord, T., & Grunert, K. G. (2002). Consumers' food choice and quality perception. Working paper no 77 (60 pp), The Aarhus School of Business.

Conner, Mark, T. (1993) Understanding Determinants of Food Choice: Contributions from Attitude Research. British Food Journal, 95(9), 27–31.

Devine, C. M. (2005). A life course perspective: understanding food choices in time, social location, and history. Journal of nutrition education and behavior, 37(3): 121–128.

Dimitri, C., Effland, A. & Conklin, N. (2005) The 20th century transformation of U.S. agriculture and farm pokicy, USDA report. Economic Information Bulletin Number 3: https://www.ers.usda.gov/webdocs/publications/44197/13566_eib3_1_.pdf?v=4259.6

Donovan, J., S. Franzel, M. Cunha, A. Gyau & D. Mithöfer. (2015). Guides for value chain development: a comparative review. Journal of Agribusiness in Developing and Emerging Economies 5(1): 2–23.

Ericksen, P.J. (2008). Conceptualizing food systems for global environmental change research. Global Environmental Change 18(1): 234–245.

European Commission, 2020. Farm to Fork Strategy – For a fair, healthy and environmentally-friendly food system. COM(2020) 38, 20.5.2020. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0381

European Commission, 2021. The new common agricultural policy: 2023-27, https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap_en

FAO (Food and Agriculture Organization of the United Nations). 2014. Developing sustainable food value chains. Guiding Principles. Rome. Available at: http://www.fao.org/3/a-i3953e.pdf [June 10, 2020].

FAO (Food and Agriculture Organization of the United Nations). 2018. Sustainable food systems – Concept and framework. Rome. Available at: http://www.fao.org/3/ca2079en/CA2079EN.pdf [April 15, 2020].

Fernqvist, F. & Göransson, C. (2021). Future and recent developments in the retail vegetable category – a value chain and food systems approach. International Food and Agribusiness Management Review 24(1): 27–49.

Fielding-Singh, P. (2017). A Taste of Inequality: Food's Symbolic Value across the Socioeconomic Spectrum. Sociological Science. 2(4): 424–448.

Fishbein, M., & Ajzen, I. (1975). Belief, Attitude, Intention and Behaviour. An Introduction to Theory and Research. Reading, Massachusetts: Addison-Welsey Publishing Company.

Furst, T., Connors, M., Bisogni, C.A., Sobal, J., & Winter Falk, L. (1996) Food Choice: A Conceptual Model of the Process. Appetite, 26, 247–266.

Gereffi, G. and R. Kaplinsky. (2001). Introduction: Globalisation, Value Chains and Development. IDS Bulletin 32(3): 1–8.

Graef, F., Sieber, S., Mutzbazi, K., Asch, F., Biesalski, H.K., Bitegeko, J. […] and Uckert, G. (2014). Framework for participatory food security research in rural food value chains. Global Food Security 3: 8–15.

Grankvist, G., Lekedal, H., & Marmendal, M. (2007). Values and eco- and fair-trade labelled products. British Food Journal, 109(2–3), 169–181.

Grunert, K.G. (2006). Future trends and consumer lifestyles with regard to meat consumption. Meat Science 74(1): 149–160.

Grunert, K.G. (2013). Trends in food choice and nutrition. In: Consumer attitudes to food quality products: Emphasis on Southern Europe, edited by M. Klopcic, A. Kuipers and and J.-F. Hocquette. Wageningen Academic Publishers, Wageningen, pp. 22–30.

Honkonen, P., Olsen, S.O. & Verplanken, B. (2005). Intention to consume seafood – the importance of habit. Appetite, 45, 161–168.

Howard, P.H. (2008). Visualizing food system concentration and consolidation. Journal of Rural Social Science. 24, 5 (24 pp).

Ingram, J.S.I., Dyball, R., Howden, M., Vermeulen, S., Ganett, T., Redlingshöfer, B. Guilbert, S. & Porter, J. (2016). Food security, food systems, and environmental change. Solutions Journal. 21(1): 151–165.

Jacoby, J. (1984). Perspectives on Information Overload. Journal of Consumer Research 10(4): 432–435. https://www.jstor.org/stable/2488912

Kemmer, S., Anderson, A.S. & Marshall, D.W. (1998). Living together and eating together: Changes in food choice and eating habits during the transition from single to married/cohabiting. The Sociological Review. 46(1): 48–72. doi:10.1111/1467-954X.00089

Köster, E.P. & Mojet, J. (2007). Theories of food choice development. In: Frewer, L.J. & van Trijp, J. C. M. (eds.). (2007). Understanding consumers of food products. Woodhead, Cambridge

Lindblom, E. (1959). The Science of "Muddling Through". Public Administration Review 19(2): 79–88. https://doi.org/10.2307/973677

Maslow, A.H. (1943). A Theory of Human Motivation. Psychological Review, 50: 370–396.

Melovic, B., Cirovic, D., Dudic, B., Vulic, T.B. & Gregus, M. (2020) The Analysis of Marketing Factors Influencing Consumers' Preferences and Acceptance of Organic Food Products-Recommendations for the Optimization of the Offer in a Developing Market. Foods 9(3):259. Feb 29;9(3):259. doi: 10.3390/foods9030259. PMID: 32121318; PMCID: PMC7142824.

Murphy, S. (2008). Globalization and corporate concentration in the food and agriculture sector. Development 51: 527–533.

Petz, M. & Haas, R. (2017). The authenticity trend., in: In: Consumer trends and new product opportunities in the food sector, edited by K.G. Grunert. Wageningen Academic Publishers, Wageningen, pp. 43–64.

Rekhy R., McConchie R. (2014) Promoting consumption of fruit and vegetables for better health. Have campaigns delivered on the goals? Appetite 79:113–123.

Schulte-Mecklenbeck, M., Sohn, M., de Bellis, E., Martin, M. & Hertwig, R. (2013) A lack of appetite for information and computation. Simple heuristics in food choice. Appetite 71:242–251.

Shepherd, R. (1989). "Factors influencing food preferences and choice." Handbook of the psychophysiology of human eating: 3–24.

Senauer, B. (1989). Major consumer trends affecting the U.S. food system. Staff Paper Series, Department of Agricultural and Applied Economics, Institute of Agriculture, Forestry and Home Economics, University of Minnesota.

Sexton, R.J. (2000). Industrialization and consolidation in the US food sector: implications for competition and welfare. Am. J. Agric. Econ. 82, 1087–1104.

SJV, Svenska Jordbruksverket, 2014. Vad betyder EU för vårt jordbruk och vår mat? Rapport 2014:21, https://www2.jordbruksverket.se/download/18.3b7625a149cb20a44948c48/1416482678677/ra14_21v2.pd

Sobal, J., Khan, L.K. & Bisogni, C. (1998). A conceptual model of the food and nutrition system. Social Science & Medicine 47: 853–863.

Sobal, M.P.H. & Bisogni, C.A. (2009). Constructing Food Choice Decisions. Annals of Behavioral Medicine, published online 29 september 2009.

Solomon, M., Bamossy, G., Askegaard, S., & Hogg, M.K. (2006). Consumer Behaviour – A European Perspective (3 ed.). Harlow: Prentice Hall.

Steenhuis, I., Waterlander, W. & De Mul, A. (2011). Consumer food choices: The role of price and pricing strategies. Public Health Nutrition, 14(12), 2220–2226. doi:10.1017/S1368980011001637

Thaler, R.H. & Sunstein, C.R. (2008). Nudge – Improving decisions about health, wealth, and happiness. Yale University Press, New Haven and London.

Thøgersen, J., Pedersen, S. & Aschemann-Witzel, J. (2019). The impact of organic certification and country of origin on consumer food choice in developed and emerging economies. Food Quality and Preference 72:10–30. https://doi.org/10.1016/j.foodqual.2018.09.003.

Walters, D. and G. Lancaster. (2000). Implementing value strategy through the value chain, Management Decision 38(3): 160–178.

Yue, C., Grebitus, C, Bruhn, M. & Jensen, H.H. (2010). Marketing Organic and Conventional Potatoes in Germany. Journal of International Food & Agribusiness Marketing 22(1–2): 164–178.

SLU Future Food

SLU Future Food is a platform at the Swedish University of Agricultural Sciences for research and collaboration to develop knowledge, solutions and innovations for a economic, ecological and social sustainable food system.

- www.slu.se/futurefood
- SLU Future Foods nyhetsbrev
- @SLUFutureFood
- Feeding your mind
- futurefood@slu.se

SLU

SCIENCE AND EDUCATION FOR SUSTAINABLE LIFE

SCIENCE AND EDUCATION **FOR SUSTAINABLE LIFE**

SLU, Sveriges lantbruksuniversitet, har verksamhet över hela Sverige. Huvudorter är Alnarp, Uppsala och Umeå.
SLU är miljöcertifierat enligt ISO 14001 • Telefon: 018-67 10 00 • Org nr: 202100-2817