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How do consumers in Vienna perceive the organic sector?

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Statutory Declaration

I hereby declare that I am the sole author of this work. No assistance other than that permitted has been used. All quotes and concepts taken from unpublished sources, published literature or the internet in wording or in basic content have been identified as such. This written work has not yet been submitted in any part.

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Abstract

The organic sector in Austria is seen as one of the most successful in Europe. During the last decades, it has become established on the market and in policies, as well as in the consumers' awareness. Actors of the organic movement currently discuss its future development. Some of them see potential in the organic sector to contribute to increasing the overall sustainability in the agri-food system. For the organic sector to be able to contribute to this development partly depends on the consumers' attitudes and expectations towards organic. This thesis offers insights into how consumers of organic food in Vienna view the Austrian organic sector. Q methodology was used to find shared perspectives amongst the participants of my study, as it includes both quantitative and qualitative elements. To collect the data, I conducted interviews with 21 consumers who live in Vienna and who purchase organic food regularly. The analysis of their q-sorts identified three groups of consumers: (1) deep-rooted organics, (2) critical organics and (3) sceptical followers. The study revealed differences and commonalities in their attitudes and underlying thinking patterns regarding organic. While the 'deep-rooted organics' are convinced that we need a global organic agriculture, the other two groups do not show such high ambitions. Despite some striking differences between the identified groups, all of them share the view that the government is responsible for supporting the organic sector and must not give away this responsibility to the consumers. The results also show some commonalities: all interviewed consumers see the need for the agri-food system to become more sustainable, and they agree that the organic sector can play its part in such a transformation.

Key words: organic sector; organic consumers; Austria; Q methodology; sustainability in agri-food systems

Content

1 Introduction

1.1 Sustainability and the agri-food system

One big challenge of the twenty-first century is the sustainable development of agri-food systems (Fournier & Champredonde, 2014). Agri-food systems comprise all actors and activities involved in production, processing, distribution, consumption, and disposal of food that originates from agriculture. On one hand, they describe the relations between the actors of the system. These include farmers, food processing enterprises, retailer companies as well as consumers. On the other hand, agri-food systems encompass the economic, societal and natural environment in which the actors operate (FAO, 2018). Currently, the global agri-food system is not sustainable on many levels (FAO, 2019). In countries of the global North, industrial models with the rationale of mass supply dominate the agri-food sector. They can ensure food security for a proportion of the world's population. However, these so-called conventional agri-food systems have long-term negative impacts on environment and society (Fournier & Champredonde, 2014).

The global agri-food system is very productive but also characterized by strong imbalances. This becomes most obvious when we look at the contradiction of affluency and malnutrition. The amount of food produced per capita has never been higher than today. Nevertheless, it is estimated that worldwide 821 million people are undernourished while around 650 million people are suffering from severe obesity (FAO, 2019). This indicates a distribution problem. And also in agricultural production, many interlinked problems can be found (Pe'er et al. 2020, p.2).

The agricultural sector – the base of all agri-food systems – drives climate change and at the same time is affected by its consequences (UN, 2019). The effects of global warming pose challenges to the agricultural sector, because of its dependency on the natural environment. Farmers need to adapt fast to changing environmental conditions. At the same time, the agricultural sector itself contributes to climate change. Activities such as animal husbandry and soil management emit a significant amount of greenhouse gases (GHG) (IPCC, 2014). Previous and following steps in the food production chain account for additional emissions. This includes the production of agrochemicals and the use of fossil fuels in farming, processing and retail (FAO, 2016). Altogether, the global agri-food-system accounts for estimated 19% - 29% of anthropogenic GHG emissions (Vermeulen et al. 2012). These emissions of the agri-food sector are a "shot in its own knee", because the resulting impacts of climate change pose big challenges to farming systems.

Our present agri-food system also contributes to some social problems. It is shaped by increasing concentration of power and anonymity (Alliot et al., 2017). Big companies grow fast while small scale farmers quit (Limmer, Hemmer, Trappe, Mainka, & Weiger, 2019). Large retailers are increasingly capable to push through their interests that often do not fit with those of farmers and other stakeholders of the system (Alliot et al., 2017). Thus, unequal power relations evolve and cause social problems such as poor working conditions and low revenues for farmers and farm workers (Alliot et al., 2017). These social aspects need to be considered when we talk about a transformation of the agri-food system towards sustainability (Alliot et al., 2017; UNEP, 2016).

It is a global challenge to make agriculture sustainable (Pe'er et al. 2020, p.1). Nowadays, sustainability is a topic of discussion in many different contexts. The formulation of the Sustainable Development Goals (SDGs) aimed to build a shared understanding of the term. Regarding the agri-food system, there is wide agreement that we need to change the way we produce, process, trade and consume food to reach sustainability in the sector (IFOAM, 2017).

This goal can be achieved if we succeed in creating a food-system that "provides healthy food to meet current food needs while maintaining healthy ecosystems that can also provide food for generations to come with minimal negative impact to the environment. A sustainable food system also encourages local production and distribution infrastructures and makes nutritious food available, accessible, and affordable to all" (APHA, 2007). To reach sustainability in the agri-food-system, we need to transform it fundamentally (FAO, 2018). Since the effects of global warming on agriculture will become more frequent and intense, efforts to change the system need to start right now (FAO, 2016).

1.2 Industrial agriculture and the Common Agricultural Policy (CAP)

Industrial agriculture has several negative impacts on the natural environment and society (UNEP, 2016). During the modernization of agriculture, practices of food production changed. Many farmers specialized on the production of only a few products, the use of heavy machinery became ordinary and new technologies, synthetic fertilizers and chemical pesticides entered the market. The shift to such industrial farming resulted in higher yields per unit of area (Limmer et al., 2019). However, downsides of this development showed up quite fast (Limmer et al., 2019). Today's industrialized agriculture causes various environmental problems. These include degradation of land caused by compaction and chemical pollution of soil (FAO, 2011), biodiversity loss (Hemmer, 2019) and the emission of greenhouse-gases (IPCC, 2014). Besides manifold effects on the environment, industrialization of agriculture also changed social structures (Alliot et al., 2017; Global 2000, 2019). Especially rural communities are affected, where agriculture shapes landscape and cultural identity (Van Huylenbroeck, Vandermeulen, Mettepenningen, & Verspecht, 2007). The industrial form of food production dominates in the global North (Fournier & Champredonde, 2014) and the problems it brings along get increasingly urgent (Limmer et al., 2019).

Agricultural policy has proven its ability to effectively direct agricultural production (FAO, 2018)**.** After the Second World War, an increase of productivity in agriculture was necessary to provide affordable food for the population. In Europe, this was achieved by the Common Agricultural Policy (CAP) which is still the most important political instrument to regulate the agricultural sector in the EU. Since then, decades have passed, and challenges changed. However, the core goals of the CAP have not been thoroughly revised. This may be a reason for the ongoing trend towards more intense and large-scale agriculture in Europe (Global 2000, 2019; IAASTD, 2009). In the EU, currently about 3% of all farms manage more than half of the agricultural area (Eurostat Press Office, 2018). We realize more and more that the "cheap food" produced by large-scale, industrial farming comes with additional costs due to externalised costs, and with unintended negative consequences (Eyhorn et al., 2019). A revision of regulatory policies may be necessary to adapt to the new challenges of the agricultural sector.

The current CAP supports various agricultural practices which contribute to environmental problems. These include biodiversity loss and land degradation (Pe'er et al. 2020, p.2). On the other hand, the EU has provided a framework and support for many alternative forms of agriculture. Organic agriculture may be the best example (Padel & Lampkin, 2007). However, NGOs and scientists argue that the CAP needs improvement to respond to current challenges of the agri-food-system (Global 2000, 2019; Pe'er et al., 2020). Currently, most of the EU agricultural subsidies are direct payments which are proportional to farm size and are bound to very limited requirements linked to environmental and social sustainability of the farming practices. Such subsidies tend to promote expansion and intensification in agriculture (ECVC, 2019; Pe'er et al., 2020). Thus, the CAP is not in line with the overall goal of a sustainable development of the agri-food system.

Currently, discussions are ongoing about the CAP period 2021-2027. Its results will be important for future developments of the EU-agriculture (Matthews, 2019). What is clear is that there will be less money available for the CAP: 30% of the EU-budget instead of previous 40% will be provided (OTS, 2019). In its proposal the EU-Commission suggests to both cap direct payments (the so-called first pillar) and provide less money for Rural Development Programmes (EC, 2018; OTS, 2019). The latter is also called “pillar 2” and includes Agri-Environment-Climate Measures (AECM). The budget cuts for this second pillar cause concern among researchers regarding the Commission’s proposal (Pe’er et al., 2020). Within the proposal they see “attempts to dilute the environmental ambition of the future CAP” (Pe’er et al. 2020, p.1). Scientists emphasize the need to support sustainable forms of farming to tackle the environmental and social challenges of the overall agri-food-system (Pe’er et al., 2020).

1.3 Potential of organic farming

1.3.1 Development of organic agriculture in Europe and Austria

Today’s organic farming is the result of continuous development of different ideas concerning alternatives to industrial food production. During the period between the two World Wars, agriculture found itself in a crisis (Vogt, 2007). The modernization of agriculture changed landscapes and began to undermine rural social life and traditions. Regarding the environment, impacts like soil degradation and an increase in plant diseases showed up. Back then, organic pioneers developed concepts for farming systems that addressed these issues and put them into practice during the 1920s and 1930s. However, only in the 1970s, when the awareness for environmental problems increased, did organic farming gain attention and the sector started to grow (Vogt, 2007).

During this time of growth of the organic sector, organic research institutes, associations and supporting groups were founded (Rahmann et al., 2017). One of them is the network IFOAM (International Federation of Organic Agriculture Movement) which aims to connect and represent actors of the organic movement across national borders (Geier, 2007). One of the purposes of its foundation was the definition of minimum requirements for organic farming to ensure a common understanding of the term “organic” and to prevent its misuse (Niggli et al., 2015). When organic started to become more popular, it was important to ensure transparency to maintain the consumers’ trust (Arbenz et al. 2016). With the EU regulation on organic farming, “organic” became defined by law. This important step of standardization enabled the European organic sector to grow. Now, organic agriculture is a fixed component of the agri-food system in Europe (Niggli et al., 2015).

Within Europe, Austria is seen as an example for areas where “the organic production has passed a tipping point” (Luttikholt 2019, 320). In the 1990s, organic agriculture began to grow rapidly due to dynamics including the introduction of premium payments for organic farming practices, the subsequent entry of grocery chains into the market of organic products and higher demand from the consumers side. Indeed, the EU membership in 1995 gave a boost to organic agriculture as it brought along changes in the agricultural policy (Eder, 2006, pp.91-92). Since then, Austria maintains a leading position in the EU regarding the share of organic, with currently 24,7% of the utilized agricultural area being certified organic (BMNT, 2019, pp.54-55). Also in terms of food market share, organic keeps growing in Austria. In 2019, organic food had a market share by value of 9,3% in food retail (Lebensmitteleinzelhandel), which is an increase of 1,8% since 2015 (RollAMA, 2019). The organic sector entered political agendas, trade, research and public relations as well as the consumers’ awareness (Geier et al., 2007, p.266). Thus, after decades of dynamic development, the organic sector became established in the Austrian agri-food system (BMNT, 2019, pp.54-55).

1.3.2 Benefits of organic agriculture

Organic farming is seen as a more sustainable form of food production compared to conventional systems (Eyhorn et al., 2019). It is a production system "that sustains the health of soils, ecosystems and people" (IFOAM 2005a, n.p.). Organic agriculture is often perceived in opposition to conventional agriculture, which is associated with "mechanization and the use of synthetic inputs […], with an emphasis on maximizing productivity and profitability" (Azadi et al., 2011). EU- and national standards define by law what counts as organic and can be labelled as such (EUCO, 2007). Additionally, private labels with mostly stricter requirements for production are on the market (IFOAM s.a.). The high level of standardization and regulation of organic agriculture are supposed to ensure quality and transparency of organic food production (Aschemann et al. 2007, p.143).

Environmental benefits of organic farming are manifold. Organic agriculture is assumed to enable agro-ecosystems to better adapt to climate change and to cause less greenhouse gas emissions than conventional farming (Niggli et al. 2007). N_2O emissions account for almost 40% of all agricultural GHG emissions. Nitrogen dioxide contributes significantly to climate change (Scialabba and Mller-Lindenlauf 2010, 161). Organic farming causes less N_2O-emissions because organic farmers do not use synthetic fertilizers. These contain nitrogen that is immediately available to soil microbes which turn the nitrogen to N_2O. Indirect N_2O emissions from nitrogen leaching and runoff are also reduced in organic farming systems (Scialabba & Mller-Lindenlauf, 2010). The chemical synthesis of nitrogen fertilizers uses energy, thereby causing CO_2 emissions in amounts that account for 10% of direct global agricultural emissions. Since organic systems exclude synthetic fertilizers and pesticides, the emissions caused by their production are avoided, too (Scialabba and Mller-Lindenlauf 2010, p.161).

Organic farms can also better deal with impacts of climate change, because they show higher resilience to changing conditions (Azadi et al., 2011). Research showed that organic farming techniques improve soil structure and its biodiversity (Niggli et al. 2007). This results in higher soil fertility and better water retention (Rützler & Reiter, 2014). Therefore, organic farms can handle dry periods better (Niggli et al., 2007). The environmental friendliness of organic farming systems roots in the ecological principle of organic farming. According to this principle, farming practices are to be based on the site-specific ecological processes and recycling (IFOAM, 2005b).

Besides environmental issues also social aspects such as fair relationships and a good quality of life for all are considered important in the organic sector (IFOAM s.a.). These social objectives are only vaguely incorporated in certification standards (Shreck et al. 2006). However, "the fact that some core values are not part of the standards does not mean that they are less important to organic stakeholders" (Ika Darnhofer, Lindenthal, Bartel-Kratochvil, & Zollitsch, 2010). Indeed, alongside the environmental advantages, organic farming systems show benefits also to the economy and social cohesion of rural areas (D'Amario, Marzoli, Martino, & Morettini, 2005). For example, organic agriculture is associated with an increase in job opportunities and rural development (D'Amario et al., 2005). Another reported benefit is more tourism in areas with many organic farms, which may be due to the positive image people have of organic agriculture and a more diversified landscape (Macrae et al. 2008). This development is strengthened by initiatives such as eco-tourism where (organic) farms offer accommodation and food and give their visitors the opportunity to help with farm activities (D'Amario et al., 2005). Thus, organic farming can contribute to rural vitality. This is in line with the organic principle of fairness which states that "Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities (IFOAM 2005b, p.3)"

1.3.3 Challenges faced by organic agriculture

As the organic sector became part of the mainstream agri-food system, new challenges appeared (Klingbacher, 2014). New circumstances like the power of retail chains over organic farmers (Geier et al., 2007, p.268) or the high level of bureaucracy associated with organic certification (Schmid, 2007, p.171) are some of these challenges. Also, pressure to increase productivity of organic production (Shock, 2016, p.vi) and competition by other sustainability initiatives in the food market such as local food, Fair Trade, no-GMO, or free-from products are described as posing difficulties for the further growth of the organic sector (Sahota, 2019, p.149). Another challenge of the organic sector refers to deficient communication with the consumers. This goes hand in hand with difficulties in ensuring transparency regarding the food value chain (Niggli et al., 2015). Some actors of the organic movement perceive that the organic sector currently does not address these challenges comprehensively.

Concerns arose that the focus on the original organic principles may get lost. “There is concern that because of growing policy interventions, at least in Europe, the organic sector has lost control over its own destiny and that policy makers are now writing the rules, perhaps trying to accommodate the needs of large corporations and free trade rather than the principles put forth by the pioneers of the organic movement” (Geier et al. 2007, p.272). An overarching challenge for the organic sector seems to be the identification of a right balance between growth on one side and maintenance of the core principles of organic farming on the other. Thus, questions emerge about the future development of the organic sector: How can organic agriculture contribute to increased sustainability of the overall agri-food system without losing its authenticity (Klingbacher, 2014)? Some actors of the organic movement see the need for a new orientation of the organic sector to address the present challenges better (Niggli et al., 2015).

1.3.4 A vision of the future of organic agriculture

Opinions about the future role of organic agriculture differ. Some actors argue that a shift to organic agriculture will be “more and more essential […] to secure food production in the future” (Azadi et al. 2011, p.93). Amongst these are associations that represent and support the organic sector such as the International Federation of Organic Agriculture Movements (IFOAM) and the Research Institute of Organic Agriculture (Forschungsinstitut für biologischen Landbau FiBL). They furthermore see potential in organic agriculture to help establish truly sustainable food production systems (Arbenz et al., 2016). On the other side, advocates for conventional agriculture often claim that organic agriculture is not able to ensure food security and therefore is not a realistic alternative for overall food production. They often refer to the lower yields of organic farming and point out that the sustainability per unit product is questionable (Eyhorn et al., 2019). These opposing viewpoints are reflected in the two narratives that dominate the discussion about how to reach sustainable food production. On one side the narrative of a fundamental redesign of the agri-food system which is based on agroecological principles (as applied in organic agriculture). The other side stands for improvement of conventional farming practices regarding efficiency with simultaneous reduction of negative externalities (Eyhorn et al., 2019).

Stakeholders of the organic sector discussed about the future development of organic and formulated four different scenarios (Niggli et al., 2015). The first one describes business-as-usual. In the second scenario, organic keeps on developing as a niche, focusing on an informed consumer class that has a very specific idea about the values of organic farming (Niggli et al., 2015). The third scenario displays organic agriculture as a model for overall agriculture. A model does not need to fully replace current agricultural systems, but it contains all essential elements to lead the way (Niggli et al., 2015). In this third scenario, organic

agriculture would further grow out of its niche and offer a real alternative to conventional agriculture (Niggli et al., 2015). The fourth scenario is a combination of the second and third scenario. It consists of higher conversion rates from conventional to organic farming on one hand and dynamic development of the organic niche on the other (Niggli et al., 2015). This idea gained most sympathy and was discussed further. The result is a holistic concept for the future development of the organic sector called Organic 3.0 (Arbenz et al., 2016).

Organic 3.0 aims at using organic agriculture as a tool to make the overall agri-food system truly sustainable (Arbenz et al. 2016). It focuses not only on further developing the organic sector but wants to contribute to a transformation of the whole system towards sustainability. Now, how can organic agriculture help to increase the sustainability of the agri-food system? The basis of the "overall agri-food system" is "overall agriculture", i.e. mainstream agriculture that produces most of the food for a population. Consequently, to achieve sustainability in the overall agri-food system, mainstream farming needs to become sustainable (Bui, Cardona, Lamine, & Cerf, 2016). The strategy of Organic 3.0 sees organic agriculture in a key position to help in this process (Rahmann et al., 2017). It outlines the new positioning of the organic sector and describes pathways of how to reach the goal of an overall sustainable agri-food system with the help of organic farming (Arbenz et al. 2017).

The term Organic 3.0 builds on two previous steps in the history of organic farming. Organic 1.0 refers to the phase of organic pioneers when organic agriculture emerged. This phase was followed by Organic 2.0, when standards and certification systems were implemented to enable the organic sector to grow (Rahmann et al., 2017, p.170). Now, Organic 3.0 wants to combine a wider spread of organic farming practices amongst conventional farmers and continuous development of the "organic niche" that defines further best practices (Niggli et al., 2015). Thereby, achievements of Organic 2.0 will not be abandoned. While standards and regulations (the basis of Organic 2.0) will still be needed to define the threshold to "enter" organic agriculture, the focus in the Organic 3.0 framework is set on the principles of organic farming again (Arbenz et al., 2016). With Organic 3.0, standards may become more outcome-based and broader, addressing all dimensions of sustainability. Organic 3.0 wants to guide producers to identify priorities in their specific context and give more importance to those developments which have the biggest impact (Arbenz et al*.,* 2016, p.3).

The strategy of Organic 3.0 includes cooperation of all relevant players, including policymakers, market players, researchers, producers, and consumers (Arbenz et al., 2016). Consumers and changes in their consumption patterns play a crucial role for any transformation of the agri-food system (Tauscher et al 2003, cited in Rahmann et al. 2017, 186). If organic agriculture will succeed in serving as a tool for a move towards sustainability strongly depends on the consumers. Of course, all actors of the agri-food system need to get involved and must support such a transformation (Luttikholt, 2019). Especially policy makers need to support the organic movement in this step to create conducive circumstances (Rützler & Reiter, 2014). But in the end, the goals set out in the Organic 3.0 concept can only be achieved if they are in line with consumers' expectations (Rahmann et al., 2017). It is therefore important how consumers perceive organic agriculture and what attitude they have towards it.

1.4 Consumers of organic food products

1.4.1 Consumers' role in the agri-food system

Perspectives on the role and power of consumers within the agri-food system differ. Some assume that consumer behavior and their purchase choices have a big influence on food systems while others put emphasis on political action as they see little power to change on the consumer side (Vittersø & Tangeland, 2015). A lot of research on food systems focused on

organic food consumption (Vittersø & Tangeland, 2015, p.92) and identified the "reflexive, political consumer […] as a key agent for change towards a more sustainable food system" (Oosterver & Spaargaren, 2012 cited in Vittersø & Tangeland, 2015, p.91). However, the assumption of the consumer as a key player in transition processes has been contested in many other studies (Goodman, 2003; Morgan et al., 2006; Ploeg and Renting, 2004; Kirwan et al., 2013; Vittersø and Jervell, 2011 cited in Vittersø & Tangeland, 2015, p.92).

Regardless of the question whether consumers have the power to initiate and support transition, they surely are stakeholders of the agri-food system. Thus, according to Arbenz et al. (2016), they need to be considered when creating a plan for the future of the organic sector. In their vision of the future development of the organic sector, IFOAM emphasizes the importance of all stakeholders for a transition of the agri-food system towards sustainability, including consumers (Rützler & Reiter, 2014). They need to get involved and empowered (Arbenz et al., 2016). In their concept paper on Organic 3.0, the authors state that "Organic agriculture is farm-based but also engages processing and trade. It allies with consumers – the force that ultimately pulls developments" (Arbenz et al., 2016, p.16). In contrast to the statement by Vittersø & Tangeland (2015, p.98) that consumers are kind of powerless end-users of the agri-food chain, the objectives described in Organic 3.0 include the empowerment of consumers (and their health) "so that they become real partners in the system" (Arbenz et al., 2016, p.17).

1.4.2 Motives and profiles of organic consumers

Research on organic consumers has been conducted ever since the 1990s. This is when the organic sector entered political agendas and became part of the mainstream food market (Pearson, Henryks, & Jones, 2010). Since then, many studies investigated the motives of organic purchase in different countries, not least to find 'typical' consumer groups (Peštek, Agic, & Cinjarevic, 2017). Different criteria have been used for this purpose such as demographic, socioeconomic, geographic and psychological factors (Peštek et al., 2018, p.271). Most of the study results are in line with each other, confirming a clear picture of the reasons for the purchase of organic food products (Pearson et al., 2010, p.172). These are on one hand the belief that organic food products are healthier and have higher quality. The other prevailing purchase motive is concern about the degradation of the natural environment (Pearson et al. 2010, p.173). Furthermore, studies on demographic attributes of organic consumers show that women (e.g. Grubor & Djokic, 2016; Krystallis et al., 2006; Nasir & Karakaya, 2014; Ureña et al., 2008 cited in Peštek et al., 2018), young persons (Hughner et al., 2007; Magnusson et al., 2003 cited in Peštek et al., 2018) and persons with higher levels of education and income as well as families with young children (Grubor & Djokic, 2016; Hughner et al., 2007; Krystallis et al., 2006; Yiridoe et al., 2005; Zepeda & Li, 2007; Dettmann & Dimitri, 2009 cited in Peštek et al., 2018) have the most positive attitudes towards organic food.

In Austria, according to Agrarmarkt Austria [AMA], the agency of the Ministry of Agriculture, 60% of the population buy organic food products at least once a week (Agrarmarkt Austria - Marketing, 2018). The same study reveals that the main motives for consumers who live in Austria to buy organic food are associated with personal benefits like healthy nutrition. Benefits concerning the environment and climate or social issues are also associated with organic agriculture, but are comparatively less influential when it comes to purchase decisions (Agrarmarkt Austria - Marketing, 2018).

Regular organic consumers are those who buy organic food products at least once a week (Hamzaoui-Essoussi and Zahaf 2012, p.11). They can be found across all age classes and income ranges (Hamzaoui-Essoussi & Zahaf, 2012). However, consumer studies revealed that most of them are parents and/or have a higher level of education, i.e. a graduate degree

(Hamzaoui-Essoussi and Zahaf 2012, p.12; Pearson et al. 2010, p.173). The Organic Trade Association found in their survey that Millennials, i.e. persons who are currently between 18 and 35 years old, form a large share of regular organic consumers (McNeil, 2017). The same study shows a clear correlation between parenting and organic purchase. Especially parents with young children seem to form a large share of frequent organic consumers. The study states that "the heavy buyer of organic […] is driven by a strong belief that selecting organic for their family makes them a better parent" (McNeil, 2017). Furthermore, older consumers have been observed to buy organic food regularly (Haas, Canavari, Slee, Tong, & Anurugsa, 2010). They often belong to so-called "empty nesters", i.e. parents whose children already moved out (Haas et al., 2010). Reasons for this consumer group to buy organic could be that they can spend more money on food after their children left home and that they are more conscious about healthy nutrition due to (first) signs of aging (Haas et al., 2010). Accordingly, regular purchase of organic food has been found to be associated to certain periods of life.

The purpose of research on consumer behavior is often to improve marketing strategies. The studies reveal reasons for the purchase of organic food and identify implications for targeted marketing strategies (Peštek et al., 2017). The underlying motivation of consumer segmentation studies is to increase the sales of organic products and to better fulfill the consumers' needs and expectations (Schleenbecker & Hamm, 2013; Weteschnik & Höllhumer, 2018). The results are also valuable to policy makers who can use the insights to adapt policies accordingly (Peštek et al., 2017).

1.5 Aim of the study and research questions

Consumers play an important role when it comes to further development of organic farming, especially if a defined vision is to be followed. Thus, it is important to know more about consumers' expectations. Since they are an important part of the organic sector, their support will be needed. In reverse, if the expectations and desires of regular organic consumers would be disappointed, it may have negative consequences for the organic sector. This study thus aims to go beyond searching for product purchasing motives. Rather, it focuses on the consumers' perception of the organic sector as an alternative agri-food system.

While most studies on organic consumers put emphasis on locating consumers who buy organic only occasionally (i.e., not on a regular basis), my thesis puts focus on the viewpoints of regular organic consumers, i.e. those who purchase organic foods at least once a week. I assume that regular buyers of organic food know more about organic food production and have an opinion concerning its benefits as well as an idea of the preferred future development of the organic sector. Therefore, I investigated their perceptions of the organic sector and its challenges. I also asked about their views regarding organic's potential to contribute to a more sustainable agri-food-system, as well as examined their visions and wishes regarding its future development.

Thus, the topic of the present thesis is the discourse on the organic sector by regular organic consumers who live in Vienna. Vienna is the biggest city in Austria and therefore a hotspot of consumption. For the organic sector, Vienna states an important sales market, because many organic consumers live there. The aim is to provide insights in this discourse by investigating how consumers of organic food products who live in Vienna perceive the Austrian organic sector. The following research questions will be answered:

- What are the challenges and potentials for the Austrian organic sector, as perceived by regular consumers of organic food products who live in Vienna?
- What are their perspectives and ideas concerning the future development of the organic sector in Austria?

2 Data collection using Q methodology

To answer the research questions, I used a qualitative research method which also includes some quantitative features. This semi-qualitative method is called Q methodology (Watts & Stenner, 2005). Generally, quantitative research aims to collect and analyze large amounts of numerical data. Qualitative research on the other hand seeks to interpret meaning from a smaller amount of non-numerical data (Ritchie & Lewis, 2003). In Q methodology, these two approaches are combined. The participants express their opinion by ranking topic-related statements on a scale from (in this case) “agree least” to “agree most”. Thereby they create numerical distributions which are then statistically analyzed. The qualitative part consists of the “post-sorting interviews” as well as qualitative interpretation of viewpoints that are identified with the use of the statistical analysis. Q methodology is used for investigating the range and diversity of subjective viewpoints on a topic of interest (Shinebourne, 2009). It identifies most “typical” viewpoints from a pool of individual perspectives (Zabala & Pascal, 2016, p.1). Therefore, it is suitable for accomplishing the aim of the present study.

2.1 Context of this work: Research project

The present thesis is part of a research project. The project is coordinated and funded by the Czech University of Life Sciences Prague. The official name of the project is 'New models of sustainable food consumption within the context of agricultural transitions' (2019B0007). It aims to investigate how consumers of organic food in the EU perceive the organic sector, what they think its current challenges are and how the organic sector could develop in the future. Researchers from five different EU-countries (the Czech Republic, Italy, Portugal, UK , Austria) conducted the same study in their respective country. All results will be merged to provide insights into the organic sector as seen by organic consumers in the EU.

The broader project influenced the present study because preparations for the national empirical studies were made jointly by all participating researchers. These preparations included the decision on the exact topic of investigation, on the target group for the survey, as well as compiling the statements used for data collection. The collaborative creation of the statements probably had the biggest influence on my study, as the statements derive from various sources originating from five different countries. The research team tried to find statements that are formulated more generally and do not refer to special national conditions, so all researchers could use the same set of statement. The statements used with consumers in Vienna are therefore not referring specifically to the Austrian organic sector. This should be considered when reading the results of the present study.

2.2 Target group and sub-groups for data collection

The target group of the present study consists of consumers who buy organic food products on a regular basis. Since these consumers are generally willing to pay a premium price for organic food products, they probably have strong opinions concerning organic and might have ideas about its future development. For this study, “regular organic consumers” are defined as consumers who buy organic food of at least one out of four categories at least once a week. The project team defined the following four categories of organic food: dairy products, meat, fruits/vegetables and bakery.

We furthermore decided to split the target group into subgroups to reach a wider range of consumers within the target group. The literature suggested that a segmentation based on life cycle status makes sense. We chose the subgroups accordingly. In the literature it is described

that becoming a parent is a major factor for people to buy organic food more regularly (Hamzaoui-Essoussi & Zahaf, 2012; McNeil, 2017; Pearson et al., 2010). Therefore, we decided to split the target group into the three subgroups “millennials”, ”young parents” (defined for the purpose of this study as millennials with at least one child) and “empty nesters”. Table 1 gives an overview of the subgroups’ definitions. Considering the necessary number of interview partners, literature about Q methodology suggests that a relatively small number of participants can be enough to achieve meaningful results. There is a rule of thumb that suggests 30-40 participants, but successful studies with less than 10 respondents have been conducted (Watts and Stenner 2005, p. 79; Brown, 1996; Previte et al., 2007, p.139 cited in Zagata 2010). For the present study, I set the aim to find about 20 participants.

Table 1: Operational definitions of the consumer subgroups used for the present study

Consumer subgroup	Acronym	Operational definition
Millennials	Mi	No child, age 18 – 35
Young parents	YP	At least one child, age ≤ 35
Empty nesters	EN	Child(ren) moved out, age ≥ 45

2.3 Sampling procedure and recruitment of the participants

To find respondents for the study, I decided to use my own social network including university colleagues, friends, acquaintances, and my work environment. This allowed me to get in contact with potential participants fast. Also, I assumed that persons who know me personally will be more easily convinced to take the time for an interview. This way of selecting the participants potentially leads to a bias for the study results. However, this was limited by defining the three subgroups beforehand, because it prevented the selection of only one very specific “bubble” of people (e.g. only fellow students).

My aim was to find an equal number of participants for each subgroup and a total number of respondents of about 20. I contacted people of each subgroup who I assumed to fit the target group in January and February 2020. I did this via mail, phone call, message or knock-on-the-door and asked them if they were interested to participate in my study. During the first contact I asked my potential interview partner if s/he sees him/herself as a regular organic consumer. Their self-assessment was confirmed in writing during the interview (this is described in more detail in section 2.4.2). Out of the 30 persons I contacted, 21 participated in the study:

For the millennial subgroup, the criteria was the age (18-35 years), and that they did not have a child. I intended to interview some of my university colleagues and friends. As I know how old they are approximately, I could be sure in advance that they would fit the subgroup. The millennials were easy to find and most uncomplicated to meet. I called them or wrote a text message including a short explanation of my intentions and a request for the interview. This way I contacted 13 people. Of these, one person was not interested in the topic (even though she buys organic food regularly). The other twelve were interested to take part. I did not fix dates for the interviews with most the millennials, but we agreed to do the interview in the next occasion. After I conducted seven interviews, I informed the other five persons that there was no more need for them to engage in the study. I know all interview partners who belong to the millennial subgroup personally.

The subgroup of young parents was defined as parents younger than or equal 35 years who have at least one child. I contacted 9 people out of which I knew four personally. Out of those four, two took part in the study. One person responded only after I already finished all

interviews and another one did not find the time. To find more young parents, I made use of my working place in the seventh district in Vienna. This is an area that is said to be home to young families that wish to lead a hip, yet sustainable lifestyle. I worked there in a so-called "Elterncafé", a place parents visit with their small children to have a coffee chat while their kids play. There, I found four interview partners belonging to the subgroup of young parents. I addressed parents who seemed young enough to fit the subgroup at the coffee counter to explain the topic and my request. I asked them about their age and if they see themselves as regular buyers of organic food. If they did and wanted to take part in the study, we set a date for the interview. I met the remaining respondent of this subgroup by chance at a coffee place in Vienna where I used to sit to study. This person found the topic interesting and, since I carried the survey material with me and we both had time, agreed to participate.

For the subgroup 'empty nesters', the criteria were age (older than 45 years) and having at least one child that already moved out. For this subgroup, I contacted eight people who I knew personally and knew would fit the subgroup. One of them did not respond, the other seven took part in the study. To reach them, I visited the neighbourhood where I grew up, which is located in the 21st district in Vienna. Since my parents still live there and I know the community, it was relatively easy to find willing participants. I sent out SMS messages to some of my friends' parents and my parents' neighbours about a week before I went there in person. The message included a short explanation of what I want to do. When I was there, I knocked on their doors to explain my intentions again and to ask if they were interested to take part in the study. The ones who were at home agreed to take part and we set a date for the interview. Two of them had time to conduct the interview right away. Some of them were not at home, so I called them later to set a date for the interview. Thus, in the end, I met 21 persons to conduct the interview with - seven of each subgroup.

2.4 Application of Q methodology

Q methodology was applied to collect, analyze, and interpret the data. Usually, Q methodology consists of six steps: identification of the discourse, development of the communication concourse, construction of the Q sample, Q sorting process, data analysis and data interpretation (Barry & Proops 2000, pp.23-24, cited in Zagata 2010, p.280). These steps have been conducted in the present study. The output of a Q study is the identification and description of a few shared viewpoints (Brown, 1980).

2.4.1 Preparations for data collection

The content-related preparations for the interviews included the identification of the subject of exploration (step 1), the collection of topic-related statements (step 2) and the selection of the most representative ones for the discourse about the topic (step 3). All these preparations were conducted in cooperation with the other researchers of the project. Since we live in different countries, we used Skype as a communication tool. We met irregularly to make decisions and keep ourselves updated during the preparation of data collection. We created a shared folder in Google Drive were the minutes of Skype meetings as well as the research design and documents used for the development of the Q sample were uploaded.

In the first step, we defined and narrowed the subject of exploration. When I joined the project, the rough idea of exploring stakeholders' perspectives on the organic sector already existed. However, after conducting some literature research and talking the project through during a Skype-meeting, we found it necessary to specify the topic. The intention was to enable all researchers to conduct the country-specific part-studies within an appropriate time frame and without excessive effort. We agreed to narrow the topic of research to "consumers'

perspectives on the future of the organic sector and the perceived potential that lies within organic farming".

The second step is referred to as "development of the communication concourse" (Stephenson, 1953). In Q methodology, the term "concourse" refers to "the flow of communicability surrounding any topic" (Brown 1980, p.94). A concourse usually consists of text containing expressions of opinions about the topic of interest (Webler, Danielson, & Tuler, 2009). This text can derive from various print media sources such as essays about the topic of interest, policy papers and newspaper articles. It is also usual to conduct interviews with "well-informed people" to create the text which contributes to the concourse (Webler et al., 2009). For the present thesis, the development of the concourse was conducted in cooperation with the other researchers of the project. All participating researchers searched for documents that included viewpoints regarding the organic sector. Each researcher did this for his or her country and two researchers additionally searched for documents dealing with the organic sector on the EU-level. To ensure that the concourse on the organic sector is represented as completely as possible, we decided to identify categories for the gathering of the documents. This enabled us to conduct structured research. We agreed on four categories with some subtopics each: "organic movement", "farming", "food production" and "institutional framework". The subtopics of each category are listed in Table 2. For Austria, I found 26 relevant documents, including strategic documents, journal articles, official policy documents, interviews, press releases, research papers and news.

Table 2: Categories and subtopics for structured research for relevant documents

Category	Subtopics
1. Organic movement	1.1. Diffusion of organic values among farmers 1.2. Promotion of organic lifestyle among consumers
2. Farming	2.1. Role of organic farming 2.2. Implementation of smart technologies 2.3. Production capacity 2.4. Environmental impacts
3. **Food production**	3.1. Food quality & health 3.2. Price 3.3. Certification system 3.4. Consumers trust
4. Institutional framework	4.1. Financial support (subsidies) 4.2. Promotion 4.3. Green public procurement

As a third step, we drew a set of representative statements from this concourse. The aim for the selection of the statements is to capture as many viewpoints as possible to reflect the current discussion on the organic sector (Militello, Janson, & Tonissen, 2016). Each researcher drew a set of statements from his or her respective documents. These statements were then sorted into the four categories (See Table 2). The aim was to find statements that are general enough to be meaningful for respondents in all involved countries (AT, UK, PT, CZ and IT).

All statements were translated into English language. We used a double-check system to ensure correct translation. Therefore, I first translated the German statements into English. Then I asked two fellow students to translate them back to German. Finally, I compared their German versions of the statements with the original ones to verify that the meaning did not change. Two statements had to be reformulated and were again double-checked to ensure

correct translation. The result of concourse development was a set of 295 statements in English language about the potential and future development of the organic sector in EU-countries. Out of these, 122 statements referred to the category “farming”, 58 belonged to “food production”, 60 quotes concern the “institutional framework” and 55 of them are matters of the “organic movement”.

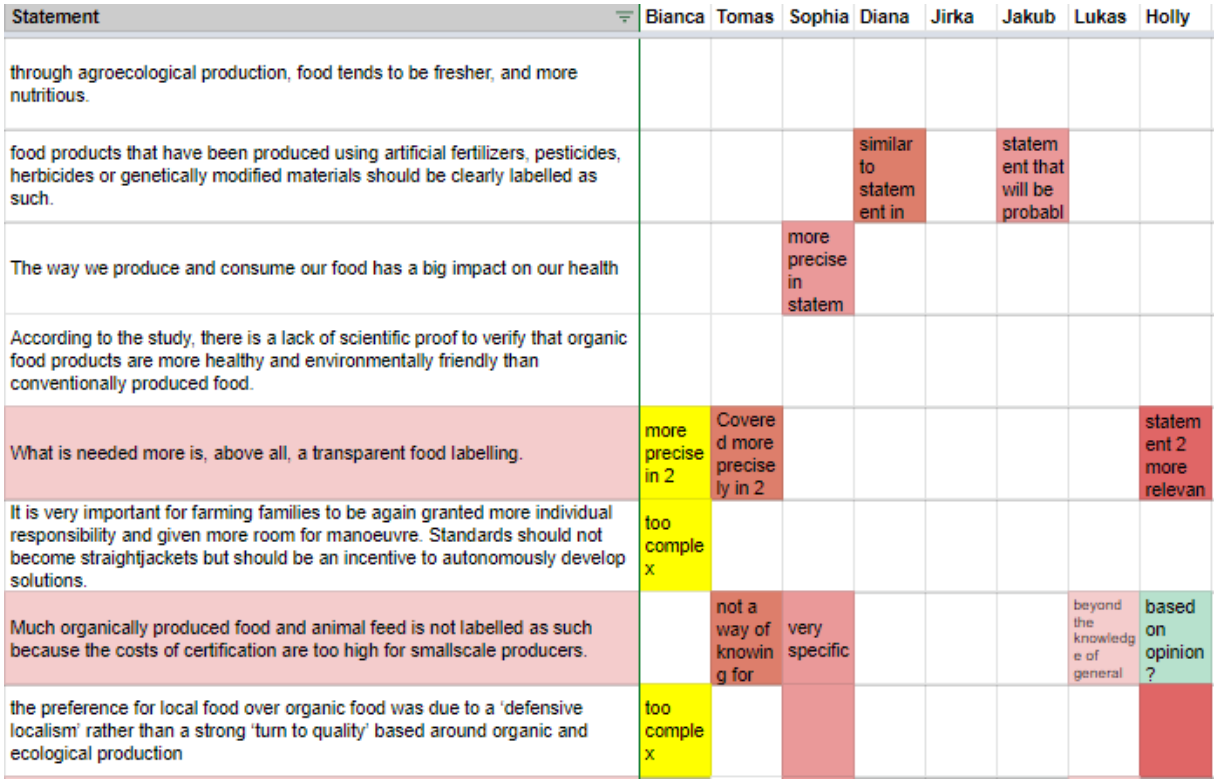
To construct the so-called Q sample (i.e. the set of quotes that we used for the interviews) these statements were sorted out to select the most representative ones. The aim was to identify around 40 to 60 quotes (Brown 1980, p.200) that altogether reflect the concourse on the challenges, potential and future development of the organic sector. In our case, this meant that we needed to reduce the number of statements from around 300 to approximately 50. This was done in two steps. First, one of the researchers who had experience with the method conducted a pre-selection that resulted in a reduction to 78 quotes. He classified the statements according to their content, additionally to the classification set during the development of the concourse, into three points. These three points are analogical to SWOT analysis[1]: impact (what has been achieved, strengths of the organic sector), challenges (critique and weaknesses) and opportunities (future needs and expected structural changes). During this first step, the researcher crossed out “duplicate, unclear, too academic and very narrow statements”, noting that “although the selection was subjective (as always)”, he “tried to make it as systematic as possible” (L. Zagata, personal communication, November 26, 2019). After this pre-selection, 78 statements remained. Their distribution across the 2 sets of categories is displayed in Table 3.

Table 3: Statement distribution across 2 sets of categories

STATEMENTS	farming	organic food	institutions	organic movement	**TOTAL**
1. IMPACTS	5	4	0	1	**10**
2. CHALLENGES	13	12	8	16	**49**
3. OPPORTUNITIES	4	1	12	2	**19**
TOTAL	**22**	**17**	**20**	**19**	**78**

The third step - the selection of the final set of statements – was done in cooperation with all participating researchers. During a Skype meeting we agreed on the target of reducing the number of statements to 47. For deciding which statements to omit, we voted. To do so, an Excel file was created which included the 78 statements. For each category, one sheet was created, and the respective statements were listed one below the other in a column. Next to the statements’ column, there were 5 columns for voting – one for each researcher. To avoid being influenced by the others’ opinion, each of us first read though all the statements and selected those which – according to one’s opinion – should be deleted. I did this by printing the list and marking the respective quotes. Only then did I open the shared file and fill in my vote. This was done by marking the cell next to the statement that was wished to be deleted. Additionally, comments could be added to explain the choice. However, this was not mandatory. To make the procedure of voting clearer, a section of the Excel sheet including the statements of the category “food production” can be seen in **Fehler! Verweisquelle konnte nicht gefunden werden.**. In the end, those statements that had most “negative markings”, were deleted.

[1] SWOT analysis is a tool used for strategic planning. It helps to identify strengths (S), weaknesses (W), opportunities (O), and threats (T) of a person, company, project, or the like.



Statement	Bianca	Tomas	Sophia	Diana	Jirka	Jakub	Lukas	Holly
through agroecological production, food tends to be fresher, and more nutritious.								
food products that have been produced using artificial fertilizers, pesticides, herbicides or genetically modified materials should be clearly labelled as such.				similar to statem ent in		statem ent that will be probabl		
The way we produce and consume our food has a big impact on our health			more precise in statem					
According to the study, there is a lack of scientific proof to verify that organic food products are more healthy and environmentally friendly than conventionally produced food.								
What is needed more is, above all, a transparent food labelling.	more precise in 2	Covere d more precise ly in 2						statem ent 2 more relevan
It is very important for farming families to be again granted more individual responsibility and given more room for manoeuvre. Standards should not become straightjackets but should be an incentive to autonomously develop solutions.	too comple x							
Much organically produced food and animal feed is not labelled as such because the costs of certification are too high for smallscale producers.		not a way of knowin g for	very specific				beyond the knowledg e of general	based on opinion ?
the preference for local food over organic food was due to a 'defensive localism' rather than a strong 'turn to quality' based around organic and ecological production	too comple x							

Figure 1: A section of the Excel sheet used for the voting procedure

To construct the final set of statements (the Q sample), the remaining 47 statements needed some editing to make sure they are brief and clear (Militello et al., 2016). Therefore, some quotes needed to be reformulated, e.g. to exclude a country's name or the enhance the message's clarity and linguistic errors were corrected. This task was fulfilled by two of the researchers. In the course of this editing, these researchers decided to delete 3 more statements. Thus, our final Q sample consisted of 44 statements. In Table 4, the Q sample, i.e. all statements used for the interviews, is shown both in English and German.

Table 4: Q sample: List of the 44 statements in English and German as used for data collection

English	German
1. Organic farming and food sector needs to improve communication towards consumers.	1. Die Biolandwirtschaft und der Lebensmittelsektor müssen die Kommunikation zu den Konsument*innen verbessern.
2. The future policy needs to take into account the true cost of industrial farming.	2. Zukünftige politische Maßnahmen müssen die tatsächlichen Kosten der industriellen Landwirtschaft berücksichtigen.
3. Food security cannot be achieved with organic agriculture.	3. Ernährungssicherheit kann mit ökologischer Landwirtschaft nicht erreicht werden.
4. Food products that have been produced using artificial fertilizers, chemical treatments or GMO should be clearly labelled.	4. Lebensmittel, für deren Produktion Kunstdünger, chemische Behandlungen oder GVO (genetisch veränderte Organismen) eingesetzt werden, sollten klar gekennzeichnet sein.

5. A more sustainable lifestyle is more costly for the consumer.	5. Ein nachhaltigerer Lebensstil bedeutet für Konsument*innen zusätzliche Kosten.
6. Organic agriculture can provide more than enough nutrition for the entire European population.	6. In Europa kann die ökologische Landwirtschaft mehr als genug Nahrung für die Bevölkerung produzieren.
7. The dependency on subsidies has a very negative effect on autonomy and stability of farms.	7. Die Abhängigkeit von Subventionen wirkt sich sehr negativ auf die Autonomie und Stabilität von landwirtschaftlichen Betrieben aus.
8. Ideological barriers between supporters and opponents of organic agriculture need to be overcome to pave the way for reaching higher sustainability.	8. Ideologische Barrieren zwischen Befürworter*innen und Gegner*innen der ökologischen Landwirtschaft müssen überwunden werden, um der Erreichung von mehr Nachhaltigkeit den Weg zu ebnen
9. Consumers have more trust in local production, as opposed to organic products, which are globally traded and whose origins and production is not always clear.	9. Konsument*innen haben größeres Vertrauen in lokale Produktion als in Bio-Produkte, die global gehandelt werden und deren Ursprung und Herstellung nicht immer klar sind.
10. Organic production must continue to grow to change conventional systems, contributing to solving global problems.	10. Die biologische Produktion muss weiterhin wachsen, um konventionelle Systeme zu verändern und somit zur Lösung globaler Probleme beizutragen.
11. The controls on organic farms should be strengthened, eliminating any derogations.	11. Kontrollen von Bio-Betrieben sollten verschärft und Ausnahmeregelungen gestrichen werden.
12. Regulations for organic farmers and producers must be simplified.	12. Eine Vereinfachung der Verordnungen für Bio-Landwirt*innen und -Produzent*innen ist notwendig.
13. Organic farming and the organic food sector is currently competing with other sustainability initiatives.	13. Die ökologische Landwirtschaft und der Bio-Lebensmittelsektor konkurrieren momentan mit anderen Initiativen für Nachhaltigkeit.
14. If ecological costs would be fully integrated into the price of the products, industrially produced food would be much more expensive.	14. Wären alle ökologischen Kosten in den Preis eines Produktes miteinberechnet, wären industriell produzierte Lebensmittel um einiges teurer.
15. Higher prices for food could perhaps contribute to a higher appreciation of their value and resulting in less food waste.	15. Höhere Lebensmittelpreise könnten zu mehr Wertschätzung für Lebensmittel beitragen und dadurch zu geringerer Lebensmittelverschwendung führen
16. Organic products should be widely available in hospital catering, schools canteens, green management and public areas.	16. Für die Verpflegung in Krankenhäusern, Schulkantinen und anderen öffentlichen Einrichtungen sollten weitgehend Bioprodukte zur Verfügung stehen.
17. More people would choose seasonal, regional and organic food products if they had the financial option.	17. Mehr Menschen würden sich für saisonal, regional und biologisch produzierte Nahrungsmittel entscheiden, wenn sie die finanziellen Mittel dazu hätten.
18. The organic movement should be more inclusive of other issues, such as social justice and food sovereignty.	18. Die Bio-Branche sollte andere Themen wie soziale Gerechtigkeit und Ernährungssouveränität stärker inkludieren.
19. Organic farming needs to be adopted on a global scale.	19. Eine weltweite ökologische Landwirtschaft ist notwendig.
20. Organic agriculture needs to be more productive.	20. Ökologische Landwirtschaft muss produktiver werden.
21. Lack of information is a major factor which limits the uptake of organic methods in modern agriculture.	21. Der Mangel an Information ist ein wesentlicher Grund für die begrenzte Aufnahme ökologischer Produktionsweisen in der modernen Landwirtschaft.
22. Smart combinations of organic and conventional methods could contribute toward	22. Intelligente Kombinationen aus ökologischen und konventionellen Methoden könnten global zu einer Zunahme von nachhaltiger Landwirtschaft führen.

increases of sustainable farming in global agriculture.	
23. Financial subsidies provided by the EU are not available for small farms and this should be addressed directly.	23. Die finanziellen Subventionen der EU sind für kleine landwirtschaftliche Betriebe nicht zugänglich und das muss direkt thematisiert werden.
24. Organic agriculture should become a priority within national and EU agricultural policies.	24. Die ökologische Landwirtschaft sollte zukünftig sowohl in der nationalen wie auch in der EU-Agrarpolitik Priorität haben.
25. Local food production is more important than organic-based food production.	25. Lokalität ist in der Lebensmittelproduktion wichtiger als Bio.
26. Organically produced food are not more nutritious.	26. Biologisch produzierte Lebensmittel sind nicht nahrhafter.
27. Small-scale producers and consumers should have a significant voice in the political decisions concerning food and agriculture.	27. Kleinbäuer*innen und -bauern sowie Konsument*innen sollten bei politischen Entscheidungen, die den Lebensmittel- und Landwirtschaftssektor betreffen, eine bedeutende Stimme bekommen
28. Organic farmers should be given more room to autonomously develop sustainable solutions.	28. Bio-Landwirt*innen sollten mehr Handlungsspielraum zur eigenständigen Entwicklung nachhaltiger Lösungen bekommen.
29. Agro-industry and mass animal production must be restricted and subsidies withdrawn.	29. Die Agrarindustrie und Massentierhaltung müssen eingeschränkt und die Subventionen dafür gestrichen werden.
30. Organic farms can better tolerate periods of drought and other extreme weather fluctuations.	30. Ökologische Landwirtschaftsbetriebe können Trockenperioden und andere extreme Wetterschwankungen besser tolerieren.
31. One of organic agriculture's strengths is improved livestock welfare.	31. Eine Stärke der Bio-Landwirtschaft ist die artgerechtere Tierhaltung.
32. Organic production requires too much land usage for minimal yield.	32. Ökologische Produktion benötigt zu viel Land für eine minimale Ernte.
33. All subsidies for agriculture should be oriented much more towards protection of environment and climate.	33. Alle Agrarsubventionen sollten sich viel mehr an Umwelt- und Klimaschutz orientieren
34. Organic agriculture dos not contribute to employment in rural areas.	34. Die Bio-Landwirtschaft trägt nicht zu einer höheren Beschäftigung im ländlichen Raum bei.
35. There is no scientific proof to verify that organic food products are more healthy and environmentally friendly than conventionally produced food.	35. Es ist nicht wissenschaftlich erwiesen, dass Bio-Lebensmittel gesünder und umweltfreundlicher sind als konventionell erzeugte Lebensmittel.
36. The increasingly present term of "regional" in opposition to "organic" creates confusion for consumers.	36. Die zunehmende Präsenz des Begriffs „regional" im Gegensatz zu „bio" ist verwirrend für Konsument*innen.
37. Consumers need to have a greater understanding of the work involved in food production.	37. Konsument*innen müssen ein besseres Verständnis für den Arbeitsaufwand der Lebensmittelproduktion haben.
38. At present the gap between "conventional" and "organic" production has become smaller and the differences blurred.	38. Mittlerweile ist der Abstand zwischen „konventionell" und „bio" kleiner geworden und die Unterschiede verwischen sich.
39. The way we produce and consume our food has a big impact on our health.	39. Die Art und Weise, wie wir unser Essen produzieren und konsumieren, hat große Auswirkungen auf unsere Gesundheit.

40. Organic farms can better adapt to volatile fluctuating market prices and climate change.	40. Bio-Landwirtschaftsbetriebe können sich besser an volatil schwankende Marktpreise und den Klimawandel anpassen.
41. Precision farming and digital technologies are necessary innovations that should be implemented in organic agriculture.	41. Präzisionslandwirtschaft und digitale Technologien sind notwendige Innovationen, die in der Bio-Landwirtschaft angewendet werden sollten.
42. The support for organic agriculture should be provided mainly from the consumers' side.	42. Die Unterstützung für Bio-Landwirtschaft sollte hauptsächlich von Seiten der Konsument*inne kommen.
43. Organic products are often imported and therefore are not necessarily environmentally friendly.	43. Bio-Produkte sind oft importiert und deshalb nicht unbedingt umweltfreundlich.
44. Organic farms can learn from conventional farms.	44. Bio-Landwirtschaftsbetriebe können von konventionellen Landwirtschaftsbetrieben lernen.

2.4.2 Interviews: Q sorting and qualitative interviews

All interviews were conducted face-to-face within 4 weeks during January and February 2020 in different places in Vienna. It would have been possible to conduct the study using an online platform, but I decided to meet the respondents in person. The face-to-face setting gave them the opportunity to ask clarifying questions about the statements and the procedure during the sorting. Furthermore, it allowed vivid dialogues with the respondents and I was able to get a better impression of their overall attitude. Mostly I met the persons at their homes or workplaces. One interview took an hour on average, including a short introduction talk, the completion of a data collection sheet, the sorting of the statements itself and a post-sorting talk.

In the beginning of the interview, I explained the aim of the research to my interview partner and asked her/him to fill in a prepared data collection sheet (see Annex 1: Data collection sheet). The data collection sheet includes a declaration of consent considering the use of personal data. The personal data, i.e. year of birth, place of living, family status and number of children was asked, to document in a written form that the respondent fits one of the defined sub-groups. The same is valid for the introductory questions concerning organic purchase. Two questions were asked to make sure that the person is a regular consumer of organic food. The first question "How do you identify the products of organic agriculture" tests if the person is aware of organic labels. The second question is: "How often do you purchase organic food". Here, the participant is asked to write down how often organic products of four different categories are purchased, ranging from "more than once a week" to "less than once a month". For the research project we defined that participants are suitable for the study if they buy at least two types of products monthly or more frequently.

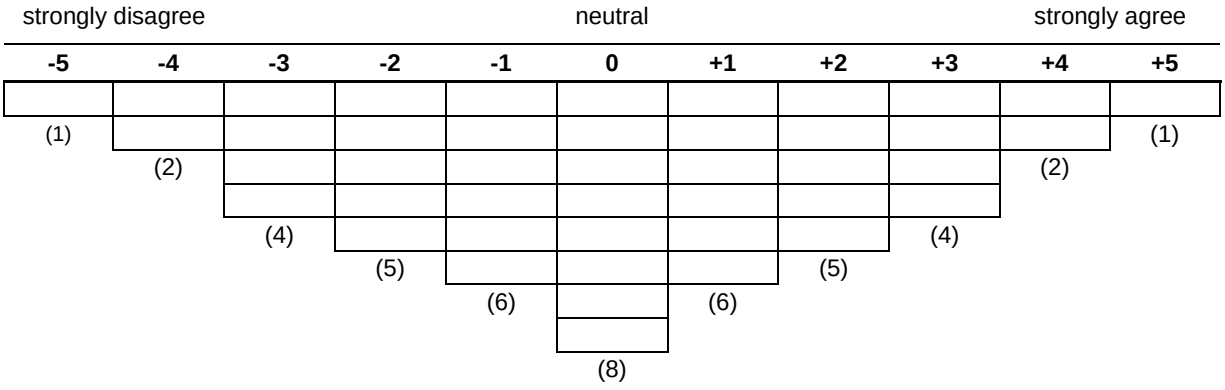
After filling the data collection sheet, the Q sorting started. For the Q sorting, the statements were numbered randomly (1 to 44) and each was printed on one small card. I printed one English version of the statements and one in German. I used the German version for 20 respondents and the English version for one participant whose mother tongue was not German. The participants sorted the statements onto the prepared template. An illustration of the used sorting grid can be seen in Table 5. I asked my interview partner to put the statements into the forced distribution of the grid according to her/his agreement with the statements. During the procedure, I underlined that personal beliefs and perceptions matter rather than scientific knowledge. I emphasized that there is no "right" and "wrong", because some participants found it difficult to rank some of the statements.

After my interview partners finished their sorting and took a reviewing look at it, I initiated the post-sorting talk. I asked the participants to give short comments on the statements they

ranked at +/-5 and +/-4. I also gave them opportunity to add any comments about the content or structure of the sorting exercise. I noted these comments on the back side of the data collection sheet.

The result of an interview was one Q sort – i.e. a sorting grid with each box filled by one statement – and a sheet with the respondent's comments. After each interview, I took pictures of the Q sort and the data collection sheet to save the data (see **Fehler! Verweisquelle konnte nicht gefunden werden.**).

Table 5: Q sorting grid (N = 44 statement items)



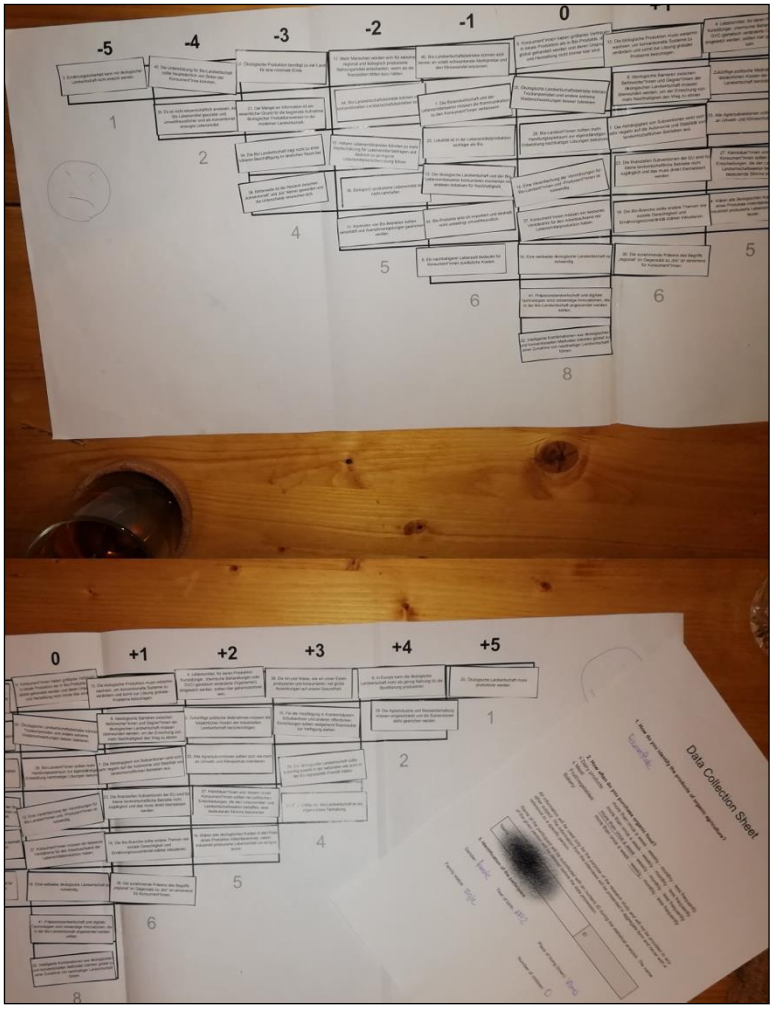


Figure 2: Example of a Q sort - pictures taken after an interview

2.4.3 Data analysis

For the analysis of the quantitative data consisting of the Q sorts, several software packages are available online and most of them are free to use[2]. For our research project, we used a web tool provided by the Czech University of Life Sciences (CULS)[3]. This software uses the statistical technique of principal components analysis (PCA). This technique cross-correlates all individual Q sorts to reveal patterns across them. PCA does that by "mathematically inventing" a few "typical" Q sorts that explain variation in all "real" Q sorts that were entered into the software (Webler et al. 2009, p.7). Using the terms "variable" and "subject" as applied in other statistical approaches, in Q methodology the variable is a Q sort done by a participant and the subject is one Q statement. Since I conducted 21 interviews resulting in 21 Q sorts, there are 21 variables in my study. The number of subjects is 44, because the participants sorted 44 statements to construct their Q sorts.

[2] A list of these software programs is available here: https://qmethod.org/resources/software/.

[3] The name of the program is "Q-SORT.CZU.CZ". It is accessible online: https://q-sort.pef.czu.cz/.

2.4.3.1 Data input

The goal of the PCA is to find patterns across the variables (Q sorts) for each subject (statement) (Webler et al. 2009, p.8). To do so, I had to enter my collected data first. One of the other researchers in the project already set up the application, so it was ready to use for me. He created the sorting grid according to the one we used for our interviews and typed in all 44 statements with the respective number between 1 and 44. Therefore, the software provided a drag-and-drop system for placing the statements in the grid (see **Fehler! Verweisquelle konnte nicht gefunden werden.**). I entered the answers of all respondents from the pictures I took, one Q sort after the other.

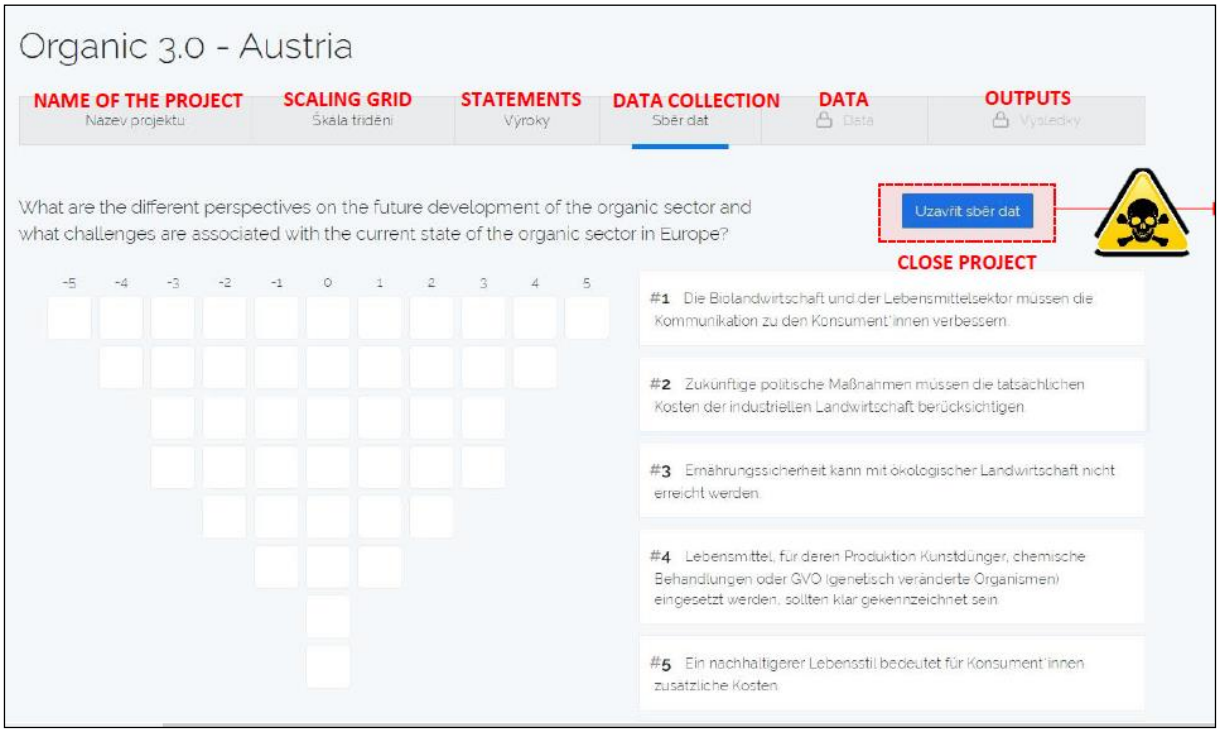


Figure 3: Screenshot of the webpage used for data analysis: drag-and-drop system for entering the data

2.4.3.2 Deciding on number of components

Before the software started the data analysis, it was asked for the number of components it should create. A component is a “typical” Q sort that is constructed by merging several individual Q sorts that show similar aspects. The components are the main output of the data analysis. They are the shared perspectives found across all respondents (Q sorts). Components can be seen as “average opinions” and should, altogether, represent most of the Q sorts that were entered in the software (Webler et al. 2009, p.8). In Q methodology, usually, between 2 and 5 components are created (Webler et al. 2009, p.11). Following the suggestion of another researcher in the project team, I had the software create two versions – one analysis that creates 3 components and another one with 4. With the requested number of components filled in, the software correlated all 21 Q sorts (variables) with each other and reduced the data one time to 3 and the other time to 4 “typical” Q sorts (Zabala & Pascual, 2016). Thus, the consumer subgroups have no meaning for the data analysis. They were created only to involve consumers with different (and, according to the literature most typical) “features”. This way, a

more representative excerpt of organic consumers in Vienna could be created. The final output of the data analysis includes not only the requested number of components, but also some statistical numbers which are helpful for the interpretation of the components.

The analysis of the 21 Q sorts resulted in the creation of components and statistical numbers that characterize these components. These statistical numbers enable an informed (yet subjective) choice regarding the number of components which are the final product of the Q study (Webler et al. 2009, p.11). When deciding on the number of components to interpret, there is a trade-off between the percentage of opinions that are involved in creating the components on one hand and clearly differentiated, expressive groups on the other. The two extremes would be 21 components (which would exactly overlap with the 21 individual Q sorts and therefore simply re-create the original data set) that capture all opinions on one side and one single component which represents the "average" of all participants' perspectives on the other (Webler et al. 2009, p.11). The statistical program can be directed to find any number of solutions in between these extremes. This is where subjective judgement enters the data analysis. It is to decide which number of components is "best" (Webler et al. 2009, p.11).

The question of how many components should be chosen does not have an ideal mathematical answer, but there is statistical guidance (Webler et al. 2009, p.11). The statistical program creates so-called Eigenvalues as well as Proportion and Cumulative Variances. These numbers are shown in Table 6. In this table, PC1-PC8 stand for created components. Components associated with an Eigenvalue that is higher than 1 "make sense" according to the mathematical statistics behind, those with an Eigenvalue below 1 are usually ignored as too minor (Webler et al. 2009, p.11). According to these numbers it would still bring useful results if 5 components were considered. However, components "have to be justified on whether or not they make sense" (Webler et al. 2009, p.11).

Table 6: Eigenvalues, proportion variance and cumulative variance of 1-8 components (PC1-8)

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8
Eigenvalues > 1	8.911	1.844	1.417	1.174	1.048	0.968	0.898	0.772
Proportion Var	0.424	0.088	0.067	0.056	0.050	0.046	0.043	0.037
Cumulative Var	0.424	0.512	0.580	0.635	0.685	0.732	0.774	0.811

To achieve meaningful results, a good balance between sufficient explained variance and explanatory power of the components needs to be found. The more components are created, the higher is the variance explained by them, but the lower is the explanatory power of the single components. In Table 6, Eigenvalue, and Cumulative Variance are given at one sight. The line "Cumulative Variance" shows the percentage of explained variability when choosing 1, 2, … 8 components. Considering these numbers together with the Eigenvalues above, it seems likely that two options could offer the most meaningful results: choosing 3 components (thereby capturing 58% of the variance) or going for 4 components (this would explain 63,5% of the variance). The 5-components-solution is associated with an Eigenvalue of 1,048 which is very close to the threshold value (1), so I did not take it for consideration. On the other side, 2 components would explain only 51,2% of variance which did not seem enough to me. Now I had to evaluate the two options of 3 vs. 4 components.

To make the final decision, I roughly interpreted the components of both options. I created each component's distribution in an Excel file to get an overview of the stance of each component. I finally decided to choose the version of 3 components, because I found the respective typical Q sorts that were constructed differed more clearly from each other. Furthermore, with the version of 3 components, all individual Q sorts except 2 matched one of the three components. This information was also provided within the quantitative results of

data analysis as shown in Table 7. In comparison, within the 4 components' option, 6 Q sorts would have been lost, because they do not fit any of the created components (see Table 8). Table 7 and 8 show which Q sort is associated to which component, based on how well the answers of the participant fit with the mathematical model.

Table 7: Data analysis showed which respondents belong to which of the three components. 2 of the Q sorts do not fit any component

$`Flagged Q-sorts`

	flag_f1	flag_f2	flag_f3
V1	FALSE	TRUE	FALSE
V2	FALSE	TRUE	FALSE
V3	TRUE	FALSE	FALSE
V4	TRUE	FALSE	FALSE
V5	TRUE	FALSE	FALSE
V6	TRUE	FALSE	FALSE
V7	FALSE	FALSE	FALSE
V8	FALSE	FALSE	TRUE
V9	TRUE	FALSE	FALSE
V10	FALSE	TRUE	FALSE
V11	FALSE	FALSE	TRUE
V12	FALSE	TRUE	FALSE
V13	FALSE	FALSE	TRUE
V14	FALSE	TRUE	FALSE
V15	TRUE	FALSE	FALSE
V16	TRUE	FALSE	FALSE
V17	FALSE	FALSE	FALSE
V18	FALSE	TRUE	FALSE
V19	FALSE	TRUE	FALSE
V20	TRUE	FALSE	FALSE
V21	TRUE	FALSE	FALSE

Table 8: When selecting 4 components, 6 Q sorts do not fit any component

$`Flagged Q-sorts`

	flag_f1	flag_f2	flag_f3	flag_f4
V1	FALSE	TRUE	FALSE	FALSE
V2	FALSE	FALSE	FALSE	FALSE
V3	FALSE	FALSE	FALSE	FALSE
V4	TRUE	FALSE	FALSE	FALSE
V5	FALSE	FALSE	FALSE	FALSE
V6	TRUE	FALSE	FALSE	FALSE
V7	FALSE	FALSE	TRUE	FALSE
V8	FALSE	FALSE	FALSE	TRUE
V9	TRUE	FALSE	FALSE	FALSE
V10	FALSE	FALSE	TRUE	FALSE
V11	FALSE	FALSE	FALSE	TRUE
V12	FALSE	TRUE	FALSE	FALSE
V13	FALSE	FALSE	FALSE	TRUE
V14	FALSE	TRUE	FALSE	FALSE
V15	FALSE	FALSE	FALSE	FALSE
V16	TRUE	FALSE	FALSE	FALSE
V17	FALSE	FALSE	FALSE	FALSE
V18	FALSE	FALSE	TRUE	FALSE
V19	FALSE	TRUE	FALSE	FALSE
V20	FALSE	FALSE	FALSE	FALSE
V21	TRUE	FALSE	FALSE	FALSE

The so-called factor loadings are another set of statistical numbers that is useful for a verification of the appropriate choice of the number of components (also called "factors"). The loadings show the correlation of each Q sort with each component, i.e. how well each Q sort fits a component. The loadings range from -1 to +1. A Q sort is most similar to the component with which it has the highest loading (Zabala and Pascual 2016, p.5). According to Webler et al. (2009, p.12), "it is desirable to have several people with high factor loadings on each perspective", because this avoids that the perspectives are influenced too strongly by single respondents. This is fulfilled by the 3-component-solution of the data analysis. Table 9 shows the loadings of each Q sort in this solution. The three data sets with the highest loadings on the respective component are marked yellow. For the first component (factor 1 in the table), the three highest loadings are all higher than 0,8. The highest loadings in the second and third component (factor 2 and 3 in the table) show numbers >0,6. Therefore, it can be ruled out that the perspectives are defined by one single respondent.

Table 9: Factor loadings of all Q sorts for the 3-component solution

Factor Matrix and Defining Sorts

$`Q-sort factor loadings`

	f1	f2	f3
V1	0.4937	0.6197	-0.1520
V2	0.1620	0.5324	0.3344
V3	0.6151	0.5145	0.1019
V4	0.8526	0.2249	0.0613
V5	0.6213	0.5180	-0.0052
V6	0.8363	0.2199	0.1806
V7	0.4349	0.4020	0.3413
V8	0.0882	-0.0735	0.7634
V9	0.6708	0.3867	0.2398
V10	0.3367	0.3479	0.0174
V11	0.2097	0.1965	0.7175
V12	0.2659	0.7535	0.2909
V13	-0.0089	0.1449	0.6278
V14	0.3133	0.6154	0.0080
V15	0.6732	0.3981	0.0728
V16	0.7581	-0.1093	0.2558
V17	0.4078	0.3373	0.3517
V18	0.0691	0.5889	0.3818
V19	0.1863	0.7464	0.0508
V20	0.5448	0.4093	0.2245
V21	0.8173	0.3376	-0.0390

2.4.3.3 Structure of each component's consumers / Component constellation

Fehler! Verweisquelle konnte nicht gefunden werden. shows the distribution of the consumer subgroups (the numbers in the cells are the respondents' IDs) across the three components. The respondents' belonging to the pre-defined consumer subgroups (young parents, millennials, and empty nesters) was traceable due to the data collection sheets. There, the year of birth of the respondent and the number of children were documented. Each respondent (i.e. Q sort) was assigned an ID number for the data analysis. Since I documented which ID belongs to which consumer subgroup, and the PCA showed which ID is associated to which component, it was easy to recreate the consumer constellation of each component.

The counts on the right side of the table show that the highest share of the respondents loads on component 1. Nine participants support the perspective of this first component. The second most participants (seven in their counts) belong to component 2 and only three of them load on component 3. This means that almost half of the participants who loaded on any component (two of the 21 Q sorts are "lost", i.e. they do not belong to any component), loaded on component 1. Since the components are "mixtures" of the respondents' opinions, this uneven distribution means that component 1 and 2 might have more explanatory power than component 3. More Q sorts were merged to form these "stronger" components, resulting in a solid, representative "average opinion". Regarding component 3, this "average opinion" is the result of mixing only three individual Q sorts. Therefore, it might be less representative. From **Fehler! Verweisquelle konnte nicht gefunden werden.** it can also be drawn that the opinion represented by component 3 is formed and supported solely by millennials. In comparison, in

component 1 this consumer subgroup is underrepresented. Here, organic parents and empty nesters form the big share. In this regard, component 2 has the most balanced constellation with three millennials, two organic parents and two empty nesters loading in this component. Taking the consumer subgroups as a starting point, the table shows that organic parents and empty nesters load mainly on component 1 while the millennials are found mostly in components 2 and 3. Thus, the component structures differ a lot regarding the number and type of consumers who load on each component.

Table 10: Overview of the distribution of interviewees in each consumer subgroup across the three components

	Millennials	Organic parents	Empty nesters	count
component 1	9	15	3	9
		16	4	
		20	5	
		21	6	
component 2	10	18	1	7
	12	19	2	
	14			
component 3	8			3
	11			
	13			
lost sorts		17	7	2
counts	7	7	7	**21**

Fehler! Verweisquelle konnte nicht gefunden werden. offers an overview of all information about the respondents that can be drawn from the data collection sheets and the results from data analysis. The colors show which component the respondents load on. Green stands for component 1, blue for component 2, yellow for component 3 and the two lines without color are the lost Q sorts. The color intensity indicates the different consumer subgroups and how strong they are represented in each component. For example, in component 2, the millennials are the consumer subgroup which is most strongly represented. In general, it is noticeable that more female than male respondents took part in the survey. Two thirds of the participants are women. The seven men are evenly distributed across the three components. All of the respondents live in Vienna and half of them are married. Sorted by loading, Table 12 shows that respondents of component 2 generally load less on that component. Those who belong to component 1 tend to have higher loadings. Considering component 3, the respondents' loadings are rather high. This means that the individual Q sorts which the component (the "typical Q sort") is made from, are closest to this "typical Q sort" in component 1. Here, the opinions of the single participants are mostly very similar to the perspective that the component represents. In component 2, some of the participants' perceptions differ strongly from the perspective represented by the calculated component.

Table 11: Overview information about respondents

ID	year of birth	gender	family status	no. of children	consumer subgroup	comp.	loading
4*	1971	female	married	1	empty nesters	1	0,8526
6**	1960	male	married	2	empty nesters	1	0,8363
5	1965	female	married	2	empty nesters	1	0,6213
3	1964	female	single	1	empty nesters	1	0,6151
21	1982	female	married	2	organic parents	1	0,8173
16	1976	male	single	1	organic parents	1	0,7581
15	1975	female	married	2	organic parents	1	0,6732
20	1978	female	married	2	organic parents	1	0,5448
9	1992	female	single	0	millennials	1	0,6708
12*	1994	female	single	0	millennials	2	0,7535
14	1992	female	single	0	millennials	2	0,6154
10	1990	male	single	0	millennials	2	0,3479
19**	1994	female	single	1	organic parents	2	0,7464
18	1992	male	single	1	organic parents	2	0,5889
1	1962	male	married	2	empty nesters	2	0,6197
2	1969	female	married	1	empty nesters	2	0,5324
8*	1989	male	single	0	millennials	3	0,7634
11**	1993	male	single	0	millennials	3	0,7175
13	1994	female	single	0	millennials	3	0,6278
7	1964	female	married	2	empty nesters	lost	/
17	1978	female	married	2	organic parents	lost	/

* highest loading participant ** second highest loading participant

Table 12: Overview respondents sorted by loading

ID	year of birth	gender	family status	no. of children	consumer subgroup	comp.	loading
4*	1971	female	married	1	empty nesters	1	0,8526
6**	1960	male	married	2	empty nesters	1	0,8363
21	1982	female	married	2	organic parents	1	0,8173
8*	1989	male	single	0	millennials	3	0,7634
16	1976	male	single	1	organic parents	1	0,7581
12*	1994	female	single	0	millennials	2	0,7535
19**	1994	female	single	1	organic parents	2	0,7464
11**	1993	male	single	0	millennials	3	0,7175
15	1975	female	married	2	organic parents	1	0,6732
9	1992	female	single	0	millennials	1	0,6708

13	1994	female	single	0	millennials	3	0,6278
5	1965	female	married	2	empty nesters	1	0,6213
1	1962	male	married	2	empty nesters	2	0,6197
14	1992	female	single	0	millennials	2	0,6154
3	1964	female	single	1	empty nesters	1	0,6151
18	1992	male	single	1	organic parents	2	0,5889
20	1978	female	married	2	organic parents	1	0,5448
2	1969	female	married	1	empty nesters	2	0,5324
10	1990	male	single	0	millennials	2	0,3479
7	1964	female	married	2	empty nesters	lost	0
17	1978	female	married	2	organic parents	lost	0

* highest loading participant ** second highest loading participant

2.4.3.4 Describing the single components

After I decided to keep the 3-components-version, I proceeded to describe the 3 typical Q sorts and other results provided by the data analysis program. To describe the three components, I created each component's distribution in an Excel file and printed it to get an overview. For each component, I looked at the strongest statements and placements of statements that cover the same topic (e.g. role of politics and consumers, potential of organic agriculture, desirable future development, priorities when it comes to agriculture, motives of buying organic, …), trying to note general tendencies of the respective viewpoint. Within each component's distribution, I searched for links and connections between statements. Therefore, I marked those statements that are somehow connected and "say something" together. Then I checked the composition of the three components in terms of which pre-defined consumer subgroups the respondents of each component belong to (millennials, young parents, or empty nesters). If I lacked explanatory power for some opinions or correlations, I looked for the respondents' comments on the respective statements. The conclusive step for the description of the single components was to find a name for each of them which gives an idea about its general stance.

2.4.4 Interpretation

In Q methodology, the interpretation aims to compare the different shared perspectives and to reveal the underlying rationales which explain these viewpoints (Webler et al. 2009, p.33). For this purpose, I started with the consensus and distinguishing statements provided by the data analysis program. I marked them on the printed components' distributions with different colours and symbols (see Figure 4**Fehler! Verweisquelle konnte nicht gefunden werden.Fehler! Verweisquelle konnte nicht gefunden werden.**). This helped to gain an overview of commonalities and differences between the components. Moreover, by having all the consensus and distinguishing statements at one glance, it was easier to interpret these statements within the context of the whole Q sort (component). Webler et al. (2009, p.35) emphasize the importance of keeping in mind that the statements were sorted in relativist context. That is, during the Q sorting, the respondent values a statement relative to all other ones, not on its own. This involves a process of weighing one statement against the other. Most of the respondents, after they placed every statement at one cell of the sorting grid, also started shifting the statements around to make sure, they stand in a relation to each other that is acceptable for the respondent. Therefore, "one needs to exercise caution in interpreting the values of individual Q statements across perspectives" (Webler et al., 2009). Working with

printed versions of the components' distribution helped to consider the position of one statement in relation to all others, and not only as isolated statements.

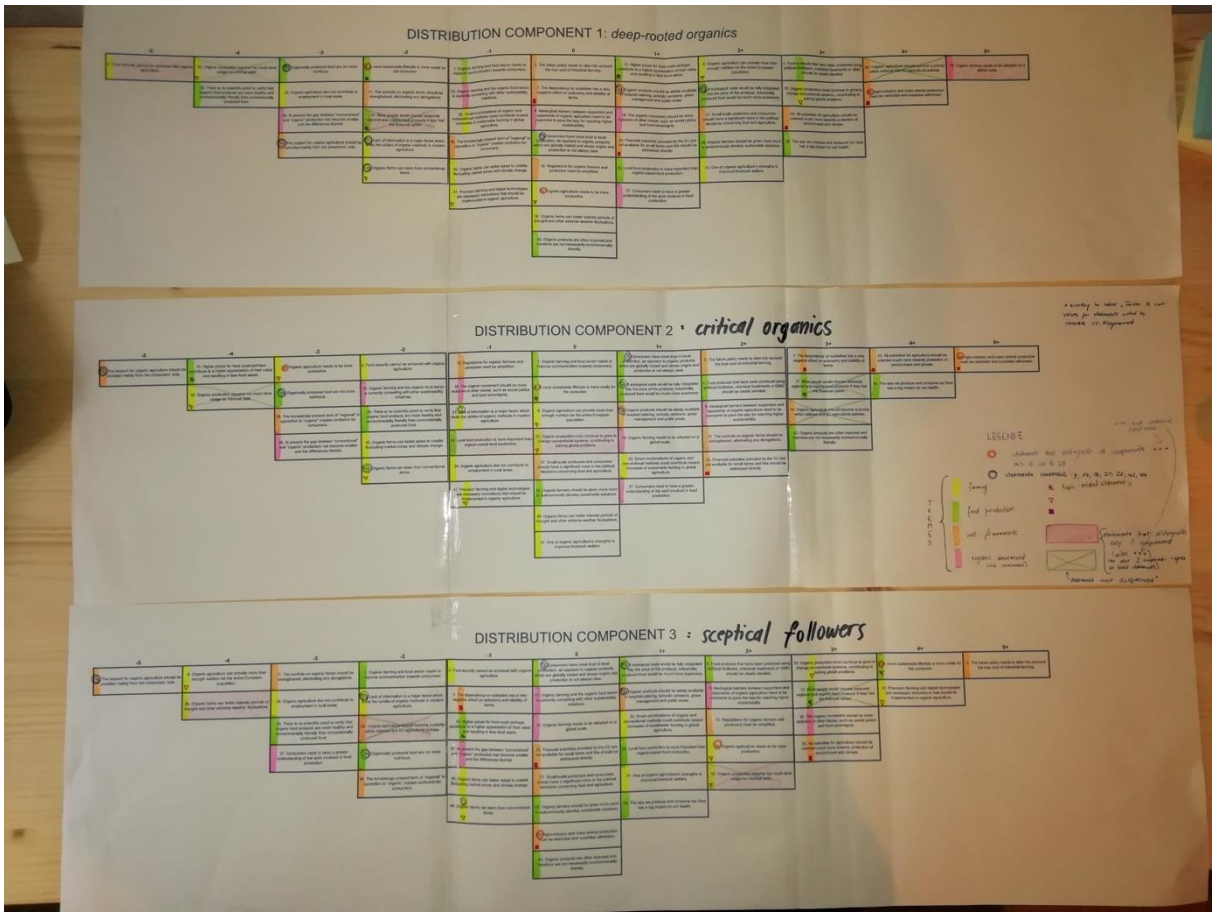


Figure 4: Printed statement distribution of the 3 components, with consensus and distinguishing statements marked in different colors

For the interpretation of the shared perspectives it is essential to understand how the single respondents interpreted the statements (Webler et al., 2009). Here, the respondents' comments helped, because they often gave insight into how the participant understood the statement. Also, some respondents gave detailed explanations about the reasons for their ranking decisions. When I was reading through the comments, I gave special attention to those of respondents whose Q sorts were most similar to the components. These are the Q sorts which loaded most on the component. They are identified in the course of data analysis. The perspective of these respondents is closest to the 'typical' Q sort identified by the software. The statements placed on the two poles of the component's distribution were mostly the same as for the respondent with the highest loading on that component. Since comments were asked for the 6 strongest statements (ranked at +/- 5 and +/- 4), her or his comments mostly explained the reasoning behind the strongest statements of the component.

After identifying the common and distinguishing elements of the three components and interpreting them in their respective contexts, I tried to find meaning in the component constellation. That is, the structure of consumers forming each component (see chapter 2.4.3.3 Structure of each component's consumers / Component constellation). Furthermore, I interpreted the lost Q sorts, i.e. those Q sorts which did not load on any component. I tried to find out why they could not be associated to one of the viewpoints and what makes them

"special". As a last step of interpretation I compiled the answers of all participants of each component to find answers to my research questions.

3 Results

3.1 Quantitative results of the Principal Component Analysis (PCA)

Having decided to take the 3-component version, all further results of the data analysis refer to this solution. First, z-scores are listed. Z-scores refer to single statements. They are the weighted average of the values that those Q-sorts which are most closely related to the component give to a statement (Zabala and Pascual 2016, p.5). Z-scores are precursors of the "factor Q sort values". Factor Q sort values are integer values based on the z-scores. Like the z-scores, they refer to single statements. Factor Q sort values are used to reconstruct the Q sort of a component. In this form, the component can then be interpreted (Zabala and Pascual 2016, p.5). To illustrate the difference between the 2 types of numbers, Table 13 shows the z-scores (left side of the table) in comparison to the factor Q sort values (right side of the table) of the first 5 statements for all 3 components (f1, f2 and f3). Based on the Q sort values, I could recreate the typical Q sorts (i.e. the components' statement distribution across the ranking grid). Table 14 shows how each statement is valued in each component.

Table 13: Comparison of z-scores and Q sort values

Factor Scores (z-scores)				Factor Q-Sort Values for Each Statement			
	zsc_f1	zsc_f2	zsc_f3		fsc_f1	fsc_f2	fsc_f3
1	-0.42	-0.02	-0.87	1	-1	0	-2
2	0.27	0.87	1.85	2	0	2	5
3	-2.41	-1.15	-0.57	3	-5	-2	-1
4	1.18	0.68	1.08	4	3	2	2
5	-0.91	0.13	1.63	5	-2	0	4

Table 14: List of all 44 statements and the respective Q sort values associated with each statement in each component

Statement number and text		Component 1	Component 2	Component 3
1	Organic farming and food sector needs to improve communication towards consumers.	-1	0	-2
2	The future policy needs to take into account the true cost of industrial farming.	0	+2	+5
3	Food security cannot be achieved with organic agriculture.	-5	-2	-1
4	Food products that have been produced using artificial fertilizers, chemical treatments or GMO should be clearly labelled.	+3	+2	+2
5	A more sustainable lifestyle is more costly for the consumer.	-2	0	+4
6	Organic agriculture can provide more than enough nutrition for the entire European population.	+2	0	-4
7	The dependency on subsidies has a very negative effect on autonomy and stability of farms.	0	+3	-1

8	Ideological barriers between supporters and opponents of organic agriculture need to be overcome to pave the way for reaching higher sustainability.	0	+2	+2
9	Consumers have more trust in local production, as opposed to organic products, which are globally traded and whose origins and production is not always clear.	0	+1	0
10	Organic production must continue to grow to change conventional systems, contributing to solving global problems.	+3	0	+3
11	The controls on organic farms should be strengthened, eliminating any derogations.	-2	+2	-3
12	Regulations for organic farmers and producers must be simplified.	0	-1	+2
13	Organic farming and the organic food sector is currently competing with other sustainability initiatives.	-1	-2	0
14	If ecological costs would be fully integrated into the price of the products, industrially produced food would be much more expensive.	+2	+1	+1
15	Higher prices for food could perhaps contribute to a higher appreciation of their value and resulting in less food waste.	+1	-4	-1
16	Organic products should be widely available in hospital catering, schools' canteens, green management and public areas.	+1	+1	+1
17	More people would choose seasonal, regional and organic food products if they had the financial option.	-2	+3	+3
18	The organic movement should be more inclusive of other issues, such as social justice and food sovereignty.	+1	-1	+3
19	Organic farming needs to be adopted on a global scale.	+5	+1	0
20	Organic agriculture needs to be more productive.	0	-3	+2
21	Lack of information is a major factor which limits the uptake of organic methods in modern agriculture.	-2	-1	-2
22	Smart combinations of organic and conventional methods could contribute toward increases of sustainable farming in global agriculture.	-1	+1	+1
23	Financial subsidies provided by the EU are not available for small farms and this should be addressed directly.	+1	+2	0
24	Organic agriculture should become a priority within national and EU agricultural policies.	+4	+3	-2
25	Local food production is more important than organic-based food production.	+1	-1	+1
26	Organically produced food are not more nutritious.	-3	-3	-2
27	Small-scale producers and consumers should have a significant voice in the political decisions concerning food and agriculture.	+2	0	0
28	Organic farmers should be given more room to autonomously develop sustainable solutions.	+2	0	0
29	Agro-industry and mass animal production must be restricted and subsidies withdrawn.	+4	+5	0
30	Organic farms can better tolerate periods of drought and other extreme weather fluctuations.	0	0	-4
31	One of organic agriculture's strengths is improved livestock welfare.	+2	0	+1
32	Organic production requires too much land usage for minimal yield.	-4	-4	+2
33	All subsidies for agriculture should be oriented much more towards protection of environment and climate.	+3	+4	+3
34	Organic agriculture does not contribute to employment in rural areas.	-3	-1	-3

35	There is no scientific proof to verify that organic food products are more healthy and environmentally friendly than conventionally produced food.	-4	-2	-3
36	The increasingly present term of “regional” in opposition to “organic” creates confusion for consumers.	-1	-3	-2
37	Consumers need to have a greater understanding of the work involved in food production.	+1	+1	-3
38	At present the gap between “conventional” and “organic” production has become smaller and the differences blurred.	-3	-3	-1
39	The way we produce and consume our food has a big impact on our health.	+3	+4	+1
40	Organic farms can better adapt to volatile fluctuating market prices and climate change.	-1	-2	-1
41	Precision farming and digital technologies are necessary innovations that should be implemented in organic agriculture.	-1	-1	+4
42	The support for organic agriculture should be provided mainly from the consumers’ side.	-3	-5	-5
43	Organic products are often imported and therefore are not necessarily environmentally friendly.	0	+3	0
44	Organic farms can learn from conventional farms.	-2	-2	-1

The next sets of numbers included in the results of data analysis provide the possibility to compare the components with each other. Table 15 shows the factor Q sort values for all statements and components sorted by consensus vs. disagreement. According to the table, the highest agreement amongst the different perspectives (components) is associated with statement number 26. In all perspectives, this statement is ranked on the negative side of the sorting grid. In component 1 and 2, it is valued “-3” and in component 3 it has the value “-2”. The statement which is ranked most differently amongst the components is statement number 32. In component 1 and 2, this statement has the value “-4” while in component 3, it is ranked at “+2”.

Further results are provided to help with comparing components. These are so-called “distinguishing statements” on one hand and “consensus statements” on the other. The distinguishing statements are listed for each component. They are statements which are valued very differently (with statistical significance) in one component than in the other two. Apart from statements that distinguish one component from the other two, there are also those statements shown which distinguish all three components. That is, statements which are valued very distinctly in all three components. Table 16 shows the distinguishing statements for each single component, including the statements that distinguish all three components from each other. In Table 17, the consensus statements are listed. These are the statements that do not distinguish between any pair of components. The numbers in the middle of the table are the respective z-scores. On the left side of the table is the number of the statement. The information about distinguishing and consensus statements was very useful in further interpretation and comparison of the components.

Table 15: Factor Q sort values for each statement in each component, sorted by consensus vs. disagreement

Factor Q-Sort Values for Statements sorted by Consensus vs. Disagreement (Variance across Factor Z-Scores)

	fsc_f1	fsc_f2	fsc_f3
26	-3	-3	-2
14	2	1	1
21	-2	-1	-2
4	3	2	2
42	-3	-5	-5
16	1	1	1
35	-4	-2	-3
9	0	1	0
8	0	2	2
44	-2	-2	-1
34	-3	-1	-3
40	-1	-2	-1
31	2	0	1
22	-1	1	1
1	-1	0	-2
36	-1	-3	-2
33	3	4	3
13	-1	-2	0
23	1	2	0
27	2	0	0
28	2	0	0
12	0	-1	2
38	-3	-3	-1
43	0	3	0
39	3	4	1
25	1	-1	1
10	3	0	3
7	0	3	-1
2	0	2	5
37	1	1	-3
30	0	0	-4
19	5	1	0
15	1	-4	-1
18	1	-1	3
3	-5	-2	-1
11	-2	2	-3
29	4	5	0
20	0	-3	2
41	-1	-1	4
5	-2	0	4
6	2	0	-4
17	-2	3	3
24	4	3	-2
32	-4	-4	2

Table 16: Distinguishing statements for component 1 (factor1), component 2 (factor 2) and component 3 (factor 3)

Distinguishing Statements

$`for Factor 1`

	zsc_f1	zsc_f2	zsc_f3	dist.and.cons
2	0.27	0.87	1.85	Distinguishes all
3	-2.41	-1.15	-0.57	Distinguishes f1 only
5	-0.91	0.13	1.63	Distinguishes all
6	0.68	-0.03	-1.85	Distinguishes all
15	0.39	-1.49	-0.60	Distinguishes all
17	-0.97	1.13	1.49	Distinguishes f1 only
18	0.67	-0.53	1.33	Distinguishes all
19	1.80	0.39	0.06	Distinguishes f1 only
20	-0.12	-1.16	1.04	Distinguishes all
22	-0.24	0.34	0.55	Distinguishes f1 only
27	0.95	0.27	-0.12	Distinguishes f1 only
28	0.89	0.03	-0.13	Distinguishes f1 only
29	1.37	2.18	0.07	Distinguishes all
39	1.21	1.75	0.57	Distinguishes all
41	-0.73	-0.24	1.53	Distinguishes all

$`for Factor 2`

	zsc_f1	zsc_f2	zsc_f3	dist.and.cons
2	0.27	0.87	1.85	Distinguishes all
5	-0.91	0.13	1.63	Distinguishes all
6	0.68	-0.03	-1.85	Distinguishes all
7	0.16	0.98	-0.37	Distinguishes f2 only
10	1.16	0.23	1.52	Distinguishes f2 only
11	-0.96	0.67	-1.04	Distinguishes f2 only
12	0.33	-0.26	0.87	Distinguishes f2 only
13	-0.54	-1.07	-0.15	Distinguishes f2 only
15	0.39	-1.49	-0.60	Distinguishes all
18	0.67	-0.53	1.33	Distinguishes all
20	-0.12	-1.16	1.04	Distinguishes all
25	0.48	-0.51	0.66	Distinguishes f2 only
29	1.37	2.18	0.07	Distinguishes all
33	1.33	2.11	1.31	Distinguishes f2 only
39	1.21	1.75	0.57	Distinguishes all
41	-0.73	-0.24	1.53	Distinguishes all
43	0.12	0.99	-0.09	Distinguishes f2 only

$`for Factor 3`

	zsc_f1	zsc_f2	zsc_f3	dist.and.cons
2	0.27	0.87	1.85	Distinguishes all
5	-0.91	0.13	1.63	Distinguishes all
6	0.68	-0.03	-1.85	Distinguishes all
15	0.39	-1.49	-0.60	Distinguishes all
18	0.67	-0.53	1.33	Distinguishes all
20	-0.12	-1.16	1.04	Distinguishes all
23	0.50	0.70	-0.25	Distinguishes f3 only
24	1.49	1.55	-0.83	Distinguishes f3 only
29	1.37	2.18	0.07	Distinguishes all
30	0.00	-0.10	-1.56	Distinguishes f3 only
32	-1.70	-1.51	0.84	Distinguishes f3 only
37	0.41	0.51	-1.05	Distinguishes f3 only
38	-1.01	-1.39	-0.26	Distinguishes f3 only
39	1.21	1.75	0.57	Distinguishes all
41	-0.73	-0.24	1.53	Distinguishes all

Table 17: Consensus statements

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Consensus Statements  --  Those That Do Not Distinguish Between ANY Pair of Factors.
   zsc_f1 zsc_f2 zsc_f3 dist.and.cons sig_f1_f2 sig_f1_f3 sig_f2_f3
9    0.26   0.33  -0.25     Consensus
14   0.95   0.51   0.63     Consensus
16   0.59   0.62   0.08     Consensus
21  -0.86  -0.42  -0.79     Consensus
26  -1.36  -1.38  -0.99     Consensus
42  -1.57  -1.76  -2.16     Consensus
44  -0.88  -1.07  -0.42     Consensus
```

3.2 Description of the identified groups

In this section I will put the statement rankings of each component in relation to each other to yield additional meaning from it. To refer to single statements and their ranking position in the component's distribution, I use abbreviations in the form: (statement number, ranking). For example, if I refer to the placement of statement number 32 at -4 ('strongly disagree') I would write (32, -4). If I refer to comments given by respondents in the post sorting interviews, I do so by writing a prefix that indicates the belonging of the respondent to a subgroup and the ID number of the cited respondent in brackets at the end of the sentence (e.g. Mi8, YP17, EN2). All comments can be found in Annex 2: Respondents' comments. The descriptions aim to give a first insight into the stances of the three identified groups of perception as a basis for subsequent comparison and interpretation. Based on the statements and the comments, I named the identified groups as follows: "deep-rooted organics", "critical organics" and "sceptical followers".

The following description of the three opinion groups is based on the statement distributions (i.e. the typical Q sorts) of the components (see Table 14). The components are the statistical products of the data analysis. Now that I will read and interpret their content, they will be referred to as "groups", "opinion groups" or "groups of perception".

3.2.1 Group 1: Deep-rooted organics

The highest share of the 21 respondents belongs to group 1 (9 Q sorts out of 21 have the highest loading on component 1 in the statistical analysis). All "group members" except for one are "empty nesters" (four respondents) and "organic parents" (four respondents). The age of these consumers ranges from 38 to 60 years. The four empty nesters live in a housing co-operative in the 21st district of Vienna for more than twenty years. There is a garden nearby where organic vegetables and herbs are cultivated and sold directly ("ab Hof"). All four empty nesters in group 1 use this opportunity at least from time to time to buy fresh organic food. This information was drawn from the post-sorting interviews. The other big part of respondents whose Q sorts form component 1 are four organic parents who are between 38 and 45 years old. To understand the notion of this first perspective, it is helpful to look at the statements which define the opinion of the group, i.e. statements that have been ranked at the two extremes of the sorting grid. On the positive side of the scale, the following statements (scores +5 and +4) are found:

+5 19: Organic farming needs to be adopted on a global scale

+4 24: Organic agriculture should become a priority within national and EU agricultural policies

+4 29: Agro-industry and mass animal production must be restricted, and subsidies withdrawn

On the opposite side of the scale, there are the statements about which the respondents disagreed strongly:

-5 3: Food security cannot be achieved by organic agriculture

-4 32: Organic production requires too much land usage for minimal yield

-4 35: There is no scientific proof to verify that organic food products are more healthy and environmentally friendly than conventionally produced food

The importance given to the statements above indicates the basic feature of the group's perception. This perspective on organic farming is characterized by a strong belief in organic. For "deep-rooted organics", there is no doubt that food security can be achieved with organic agriculture (3, -5). The argument that we need conventional agriculture to ensure enough food supply does not count for them. They rather think that organic agriculture is much more likely to ensure food security in the long term compared to industrial agriculture. They argue that organic practices preserve the resources that are necessary for food production while industrial agriculture destroys them (EN6, YP16).

Group 1 stands for the conviction that the organic sector has high potential to help solving environmental problems. This can be read e.g. from the placement of statement 10 at +3 and the ranking of statement 19 at +5. The topic of how we produce our food is charged with strong emotions for respondent of this group. This can be noticed by the content and wording of the respondents' comments. For example, respondent EN4 says that a global organic agriculture is a "utopia, the big target we need to strive to". This formulation and specifically the word "utopia" may connotate something negative. It suggests that the idea of a global organic agriculture is far from reality, a state that may even be impossible to achieve. This notion seems to contradict the expressed urgency for such a global organic agriculture.

The respondents of group 1 are worried about the environment and see climate protection as a priority (33, +3). Organic agriculture, in their opinion, can be used as a tool for environmental protection, because it treats nature with care (e.g. YP21: "Organic agriculture and environmental protection go hand in hand"). Regarding the environmental impact, they see organic as an opposite alternative to conventional agriculture which in their eyes causes only problems (e.g. 38, -3). In the words of respondent YP16: "A food system that is based on conventional agriculture will in the long term destroy the resources it relies on: soil and ecosystems". They are convinced that the current food system is not sustainable, neither on environmental levels nor on social levels (e.g. 29, +4; EN6, EN5). In group 1, respondents see high potential in organic agriculture to help solving these sustainability problems (10, +3). Group 1 is persuaded of its positive impact on environment, health and society (35, -4; 34, -3). Indeed, in this perspective, it is essential to adopt organic agriculture on a global scale (19, +5). In this way, sustainability in food production can be achieved. They see a global organic agriculture as the "big aim", the ideal way of food production (EN4, EN6).

In this perspective, organic agriculture must continue to grow to unfold its potential (10, +3). However, it must not necessarily become more productive (20, 0). This opinion implies that the members of group 1 do not see the need to change the organic practices themselves. They are happy with the way the organic sector works today and want to see a broader uptake of these farming practices. Group 1 highlights the importance of political action for achieving such an ongoing spread of organic practices. All subsidies for agriculture should be oriented much more towards protection of the environment and climate (33, +3). The respondents think that

organic agriculture should become a priority within national and EU agricultural policies (24, +4). Agro-industry and mass animal production, on the other hand, must be restricted and subsidies withdrawn (29, +4). While they think that consumers should be provided transparency to make informed decisions (4, +3) and get a significant voice in the political decisions concerning food and agriculture (27, +2; 37, +1), they reject the position that the main support for organic agriculture should be provided from the consumers' side (42, -3). Thus, they see the responsibility for further growth and development of the organic sector clearly at politics.

Concerning organic farmers, in group 1 respondents perceive it unnecessary to strengthen controls on organic farms (11, -2). They seem to trust in organic farmers to act in line with the organic principles (or, with whatever picture the consumers have of organic agriculture) and find that the current control system is adequate. In this perspective, organic farmers should be given more room to autonomously develop sustainable solutions that fit their specific conditions and possibilities (28, +2). Furthermore, the members of group 1 think that small-scale farmers should be included in decision processes regarding the food and agricultural sector (27, +2). In this perspective, farmers should be much more included in shaping the framework of their working life.

"Deep-rooted organics" purchase organic food products mainly out of the conviction that organic food is better for the world (e.g. 35, -4; 39, +3). They also perceive benefits for their own health (26, -3). However, food production seems to be secondary in this group. Expectations from the organic sector exceed the production of nutritious and tasty food. In this perspective, there are strong differences between conventional and organic food production regarding both the production process and the quality of the end products (e.g. 38, -3; 29, +4; 44, -2). The respondents are positive that there is scientific proof for organic food being more environmentally friendly than the conventional alternative (35, -4). They are convinced of the positive impact of organic agriculture and want to contribute their part to support its further development and growth (39, +3).

3.2.2 Group 2: Critical organics

The second identified group of perception represents an approach which is generally positive but also pragmatic and critical when it comes to organic agriculture as a solution for global problems. Seven respondents statistically loaded into this second component, including two persons who belong to the consumer subgroups "empty nesters" and "organic parents" each, and three consumers of the "millennials"-subgroup. Looking at the statement ranking, on the positive side (+5, +4), we find the following statements:

+5 29: Agro-industry and mass animal production must be restricted, and subsidies withdrawn

+4 33: All subsidies for agriculture should be oriented much more towards protection of environment and climate

+4 39: The way we produce and consume our food has a big impact on our health

The opposite side of the sort type includes the statements with least agreement. These are:

-5 42: The support for organic agriculture should be provided mainly from the consumers' side

-4 15: Higher prices for food could perhaps contribute to a higher appreciation of their value and resulting in less food waste

-4 32: Organic production requires too much land usage for minimal yield

The main distinguishing points of this groups' opinion include the vision of a policy support that is associated with the role of consumers. In this perspective, the prices for organic food are too high for the majority of people. Group 2 calls for a relief of consumers regarding financial burden and responsibility (42, -5). In this viewpoint, it is criticized that organic products are only affordable for more affluent social classes (17, +3). This barrier needs to be diluted for the organic sector to grow and to enable good nutrition for all. In any case it is clear for the second group that organic food is better for their health (26, -3; 35, -2). This is the main reason to buy organic for member of this group. They see the production of healthy, tasty food as the most important task of the organic sector while it lies at the politicians' responsibility to make sure that everybody can afford frequent purchase of organic food.

Members of group 2 perceive organic agriculture as better farming practices compared to conventional food production. They see clear differences between the two approaches (38, -3). However, they are more sceptical about the meaningfulness of organic labels. For them, an organic label on a food product does not imply that it has been produced sustainably. EN1 commented on this saying: "I am not convinced that the respective product is automatically sustainable only because it is labelled organic". one argument is that organic products are often imported from distant countries and are thus not necessarily environmentally friendly (43, +3; 9, +1). "Critical organics" also question the compliance with the organic principles on organic certified farms. They demand stricter controls on organic farms to make sure that these principles are being fulfilled (11, +2). This suggests that they do not fully trust the organic sector and their claim to offer holistic sustainability.

The respondents belonging to group 2 are somehow advocates for consumers. They see strong grievances in the current agricultural subsidy policy because it promotes large-scale industrial agriculture (29, +5), resulting in lower costs for food products that harm the environment and are less healthy (39, +4; 35, -2). Consumers with less income thus may have no other choice than buying these cheaper products (17,+3). Members of group 2 see this as an error in the system. Mi14 argues: "It should not be a matter of social conditions whether organic is affordable or not." In this opinion, it is often financial barriers that keep consumers from buying organic food (17, +3). They would welcome a reflection of the ecological costs of production in the price which would result in higher prices for industrially produced food (14, +1). This way, also people who are not well informed (and do not care so much) would buy organic products, as well as those who are not that financially sound (17, +3). On the other hand, respondents of group 2 think it is important to enable informed purchasing decisions for more conscious consumers. They therefore ask for more transparency concerning food production processes (4, +2). Altogether, group 2 calls for conditions that allow consumers to find their way to a sustainable lifestyle easily and without additional costs.

Group 2 represents the view that policy makers are responsible to realize proper conditions for the consumers and to support the organic sector. The notion that consumers carry responsibility for supporting the organic sector is strongly rejected (42, -5). This perspective highlights the need for policies that create conditions which make it easy and feasible for consumers to follow a sustainable lifestyle (2, +2; 29, +5). Such policies should facilitate further growth of the organic sector (e.g. 24, +3). According to group 2, this can be achieved with financial tools (29, +5; 33, +4): including external costs into product prices would reflect true costs of production and make organic products cheaper in comparison (14, +1). Moreover, higher subsidies for environmental protection would also contribute towards reducing the prices for organic food (33, +4). For group 2, it is inacceptable that subsidies are provided for industrial agriculture and mass animal production (29, +5; Mi14,YP18,YP19). As long as policies promote such unsustainable practices, any change of consciousness and purchase behavior on the consumer side is without much effect (EN1).

Consumers who belong to group 2 share a simplified look at organic agriculture. They are less interested in technical aspects and feel like they do not need to know. In their opinion,

consumers do not need to be informed about details concerning the production processes of food. Rather, food prices should reflect its impact on the environment (14, +1; 2, +2; 33, +4) to ensure affordability of healthy organic food for all. To achieve this, group 2 sees the urgent need to direct all subsidies for agriculture much more towards protection of the environment and climate (33, +4), thus supporting (amongst others) organic agriculture (24, +3).

3.2.3 Group 3: Sceptical followers

The third identified opinion group is derived from a blend of 3 individual Q sorts. That is, 3 respondents loaded onto the respective component 3. All of them belong to the consumer subgroup "millennials". The main feature of group 3 is a remarkable skepticism towards organic farming itself as a farming model for global agriculture. Taking a look at the statement distribution, the strongest statements on the positive side of the scale are:

+5 2: The future policy needs to take into account the true cost of industrial farming.

+4 5: A more sustainable lifestyle is more costly for the consumer

+4 41: Precision farming and digital technologies are necessary innovations that should be implemented in organic agriculture

On the negative extreme of the scale we find:

-5 42: The support for organic agriculture should be provided mainly from the consumers' side

-4 6: Organic agriculture can provide more than enough nutrition for the entire European population

-4 30: Organic farms can better tolerate periods of drought and other extreme weather events

The placement of statement 2 ("The future policy needs to take into account the true cost of industrial farming") at +5 together with statement 33 ("All subsidies for agriculture should be much more oriented towards protection of environment and climate") at +3 indicate that the respondents belonging to this group are not happy with the food system dominated by industrial farming. Apparently, they see problems within the conventional system (2, +5; 10, +3) and wish for more environmentally friendly food production (33, +3). According to these consumers' perspective, organic agriculture may be one approach to accomplish this, but in its current form it is not developed enough to serve as a model for agriculture in Europe (6, -4).

Their skepticism may be founded on a perception that organic farming is not productive enough (20, +2). That is, it uses too much land for a minimal yield (32, +2). In order to improve productivity, organic agriculture should be more open to new technologies like precision farming (41, +4). These consumers are not very convinced that food security can be assured by organic farming (3, -1) and do not see any advantages of organic farming when it comes to adaptation to new climate conditions (30, -4). This view underlies the opinion that organic agriculture should not be a priority in future policies (24, -2). Nevertheless, respondents belonging to group 3 think that all agricultural subsidies should take into account climate protection and environmental issues (33, +3). They may thus see organic agriculture as one small (yet not sufficiently developed) part of a bigger picture of how to reach environmental sustainability in the food system.

The motive for these respondents to buy organic food is not clear. It seems to be a diffuse feeling that it is probably better for the environment and health (35, -3; 26, -2). They appear to

care for the environment, but not passionately, and it does not seem to be the reason for them to buy organic food.

However, group 3 wants to see the organic sector grow to change the conventional system and play its part in solving global problems (10, +3). In this perspective, one precondition for organic agriculture to keep on growing is that organic food becomes more affordable (17, +3). Group 3 sees a clear connection between financial welfare and the ability to lead a sustainable lifestyle, including the frequent purchase of organic food (5, +4; Mi8). The group disapproves the image of consumers bearing any responsibility for supporting organic agriculture (42, -5). They take the clear position that at present, purchasing organic products is too expensive for most people (5, +4; Mi8). Having a sustainable lifestyle should not be an effort for anybody. Neither financially, nor in a sense of gathering information. Respondents of group 3 think that it is neither necessary nor bearable for consumers to be fully informed about the way their food is produced (37, -3; 1, -2). Most people must deal with problems that appear more urgent to them. They should not need to inform themselves. Rather, product prices should reflect true costs, thus leading the consumer to buy sustainable goods (2, +5; 14, +1).

Members of group 3 think that policies are in charge of providing conditions that make it easy and more feasible for consumers to lead a sustainable lifestyle (2, +5; 33, +3). To realize reasonable and affordable prices for organic food in comparison to conventional food, external costs need to be included into the price (14, +1). Subsidies should be much more oriented towards sustainability issues (2, +5; 33, +3). This way, consumers could support the further development of organic agriculture without effort and would be provided of healthy nutrition.

3.3 Distinguishing elements of the three viewpoints

Data analysis delivered material that is useful for comparing the three groups of perception. Regarding disagreements between the three identified perspectives on the organic farming, two sets of information can be found in the results of the PCA. First, there is a table in which all statements are listed, sorted by agreement (see Table 15 in chapter 3.1). In this table, the last 3 statements are the ones about which there is least consensus. Second, PCA explicitly lists distinguishing statements (see Table 16 in chapter 3.1). That is, statements that distinguish all components from each other, in a statistically significant way (statements number 5, 20 and 29) as well as statements which distinguish one component from the other two (whereas these other two agree on these statements).

These two sets of statements enabled me to compare the components regarding their unique, distinctive features and thus to better define the content of each component's discourse. In the following, I will discuss the three distinguishing statements in the context of each described opinion group and under consideration of the respondents' comments. Thereafter I will describe those statements which distinguish only one component from the other two. The last sub-chapter will deal with the statements with least consensus amongst the three components.

3.3.1 Statements that distinguish all components

The three statements that distinguish all three components with high statistical significance (according to the PCA results) are the statements number 5 ("A more sustainable lifestyle is more costly for the consumer"), 20 ("Organic farming needs to be adopted on a global scale") and 29 ("Agro-industry and mass animal production must be restricted and subsidies withdrawn"). It is noticeable that each of these three statements has a different topic. Statement 5 deals with the consumer side, statement 20 with agricultural production and statement 29 with the political framework for agriculture. The position of the statements in each component's distribution now needs to be considered in the context of the whole respective Q sort, because

in Q methodology, the relative position of a statement is more important than the isolated value given to it. Moreover, attention should be given to the comments of the respondents to find out how they interpreted the statements. The comments are particularly important regarding statements with excess meaning, i.e. when there is a lot of room for interpretation.

3.3.1.1 Statement 5: "A more sustainable lifestyle is more costly for the consumer"

Statement 5 is ranked at -2 in component 1. That is, respondents who load on this component rather think that a sustainable lifestyle does not imply additional costs for the consumer. One of the respondents explained this viewpoint with the comment: "In the contrary, a sustainable lifestyle can be even less costly, because it tends to come along with less consumption and waste" (EN3). This comment suggests an underlying image of what a sustainable lifestyle is. This image includes a generally low consumption (of material things) and a low rate of waste generation. Furthermore, in the viewpoint derived from component 1, the factor price does not play a crucial role when it comes to the decision to lead a sustainable lifestyle. Nor does the decision of consumers to buy organic or conventional food depend on the available money. The respondents do not think that more people would buy organic food if they could afford it (17, -2). Generally, it seems like they think that consumers cannot simply be guided through prices, but that a certain degree of consciousness and knowledge are the basis for "sustainable purchase decisions" and an overall sustainable lifestyle. Such a sustainable lifestyle, in the perspective of "deep rooted organics" is rather linked to generally more humble consumption patterns than to increased costs of living.

In the perspective represented by component 2, the price is very important as an incentive for organic purchase. In contrast to component 1, the respondents think that the price plays a crucial role in purchasing decisions: The statement "more people would choose seasonal, regional and organic food if they had the financial option" is placed at +3 in the distribution. However, it seems like these respondents see a difference between regular purchase of seasonal, regional, organic food and a sustainable lifestyle. That is, only because someone buys organic does not mean that she or he leads a sustainable lifestyle. This would explain the ranking of the statement that a more sustainable lifestyle is more costly for the consumer at zero (i.e. neutral). Respondents' comments suggest that the understanding of a sustainable lifestyle is similar to how it is seen by the opinion group derived from component 1. In this comment on the statement, the respondent explains: "This is nonsense. The best example is meat consumption. Less meat means less costs. In the contrary – in middle – and long term a sustainable lifestyle is less costly" (Mi10). Thus, in the perspective of respondents who loaded on component 2 a sustainable lifestyle includes less consumption (e.g. of meat) and, as a consequence, no higher costs. Nevertheless, the statement is placed at value zero in the distribution of component 2. This indicates that the statement is not important for the associated respondents. This is surprising on one hand, because all other price-related statements are placed at stronger rankings (e.g. 15, -4 and 17, +3). On the other hand, it makes sense with the assumption that for the opinion group derived from component 2, the type of food that is purchased (organic/conventional/regional/seasonal) has little to do with how sustainable a lifestyle is.

In the third perspective (derived from component 3), it seems to be very clear, that a sustainable lifestyle brings along additional costs for the consumer. Respondent Mi8 loaded most on component 3. As an explaining comment on this statement Mi8 says: "Organic food costs more than conventional food". This suggests that in component 3, respondents assume that a sustainable lifestyle is clearly connected to the purchase of organic food. Respondent Mi8 goes on, stating that "there is a clear link between economic welfare and the purchase of organic food". Putting together the ranking and comments, in this viewpoint, a sustainable lifestyle is not only more costly, but even only possible for affluent people. Therefore, the

understanding of a sustainable lifestyle of the opinion group derived from component 3 differs from the viewpoint of the other groups.

3.3.1.2 Statement 20: “Organic agriculture needs to be more productive”

The second distinguishing statement “Organic agriculture needs to be more productive” (20) is ranked at zero in component 1. This statement was interpreted in very different ways by respondents of the different components. One of those who loaded on component 1 explained during the post-sorting interview, that in his view, organic agriculture needs to be more productive “in a sense that more organic farms are needed, not that a single farm needs to produce more on the same land” (YP16). Thus, this respondent interpreted the meaning of “productivity” in a way which does not match the term in an economic sense (i.e. output per unit input). Since this is the only comment referring to statement 20, it is unclear if all respondents who loaded on component 1 interpreted the statement in this way. However, it can be said that this statement seems to have excess meaning and left room for different interpretations.

It is surprising that this important statement considering productivity of organic farming is ranked at zero in component 1 - the “deep rooted organics”. I would have expected the statement to be ranked somewhere on the negative side of the distribution grid, because of the rankings of topic-related statements. For example, the quote “Organic production requires too much land for a minimal yield” is ranked at -4, suggesting that the respondents of component 1 think that there is no need for organic agriculture to produce higher yields on the used land. Also the quote “Food security cannot be achieved with organic agriculture” at the negative extreme (-5) tells that for respondents loading on component 1, there is nothing wrong with organic farming’s productivity. Comments referring to other statements confirmed this viewpoint, e.g. “We do not need that [precision farming and digital technologies]. This is something that is once again adapted to mass production” (YP16). However, the discrepancy between the unremarkable placement of statement 20 and the strong opinion on its underlying theme may be explained by the different interpretations of the statement.

In component 2, statement 20 is ranked clearly on the negative side (-3). Respondents who load on this factor therefore do not think that organic agriculture needs to be more productive. There is one comment on this statement that could give a hint on the stance of the viewpoint. Respondent YP19 said: “The obsession with ever increasing productivity is one of the main reasons that so many things go wrong.” The respondents left no more comments regarding statement 20, so there is no clue considering the way how the participants understood the quote (and especially the term “more productive”). However, from the rankings of other, topic-related statements, conclusions can be made. For example, as in component 1, the statement “Organic food production requires too much land usage for a minimal yield” is ranked at -4. This suggests that the respondents interpreted the term “productivity” in statement 20 in its economic sense (yield per ha cultivated land). This is sustained by the ranking of statement 44 (“Organic farms can learn from conventional farms”) at -2 in combination with the comment “They should have opposite approaches” (EN1, 44), because conventional agriculture is often linked to the desire of increasing productivity. Thus, even if the quantitative difference in the placement of statement 20 between component 1 and 2 is big, their respective viewpoints on the quote seem to be similar.

For respondents who loaded on component 3, it seems to be clear that organic agriculture needs to be more productive. The statement is placed at +2. This viewpoint is explained by respondent Mi13 who comments: “The world’s population is increasing and needs to be fed. Since organic agriculture requires more space, there will otherwise be a problem of sufficient production.” Generally, in the viewpoint represented by component 3, industrial farming is not the ideal way to “feed the world”. This can be read from the ranking of statement 2 (“The future

policy needs to take into account the true cost of industrial farming") at +5 in combination with the agreement regarding statement 10 ("Organic production must continue to grow to change conventional systems, contributing to solving global problems") and 33 ("All subsidies for agriculture should be oriented much more towards protection of environment and climate") which are both positioned at +3. Apparently, on this perspective, respondents agree that conventional food production systems harm the environment. They think that policies should take responsibility to support forms of agriculture which contribute to environmental protection and see potential in organic agriculture. However, organic farming, in their view should be more open to opportunities that enable higher productivity. It should, e.g. adapt new technologies and combine with conventional methods (41, +4 and 22, +1). This focus on making organic agriculture "fit to feed the world", even if this would mean divergence from the organic principles, distinguishes the perspective from those represented by component 1 and 2.

3.3.1.3 Statement 29: "Agro-Industry and mass animal production must be restricted and subsidies withdrawn"

The third distinguishing statement, "Agro-Industry and mass animal production must be restricted and subsidies withdrawn", is ranked at +4 in component 1. The topic is connected with strong emotions for the component-loading respondent. This can be read from comments such as "I reject mass animal production. It is not species-appropriate, brings anonymity and denies right of existence. Agro-industry destroys soils and water bodies" (EN6). In the view that component 1 represents, industrial agriculture seems to be something intolerable. Another respondent comments: "Agro-industry causes environmental destruction that lasts. Mass animal production is disrespectful of living beings and very unhealthy. This must not be subsidized" (EN5). For the opinion group derived from component 1, organic agriculture is the undisputed counterpart to conventional food production and a global adaptation of its farming methods "the big aim", as respondent EN4 formulates it. In this first perspective policies and subsidies as one important instrument must be directed to support organic farming. There is high agreement that "all subsidies for agriculture should be oriented much more towards protection of environment and climate" (statement 33 at +3). A respondent comments on this subsidies-related statement: "Subsidies can be well used to drive development […]. With agricultural subsidies oriented towards environmental protection, this money would finally land where it belongs to" (EN3).

In component 2, statement 29 is ranked at the positive extreme of the statement distribution (+5). From the provided comments, it can be concluded, that the view represented by component 2 resembles the one of component 1. For example, one respondent states that "what is proven to be seriously bad for health and environment must not be subsidized" (Mi14). Another one proposes: "Subsidies must not be provided for […] agricultural practices that harm the environment" (YP19). It is striking that in component 2, compared to component 1, the environmental impact of industrial farming is more important than ethical and health issues related to mass animal production.

Considering statement 29 in the context of the overall statement distribution in component 2, I noted the general focus of the whole perspective on the institutional framework of the agricultural sector. That is, half of the statements that are ranked at the poles of the distribution (i.e. +/- 4 and 5) belong to that category. In contrast to the opinion group derived from component 1, which puts focus on organic farming as a solution for problems in the agricultural sector, the group derived from component 2 emphasizes grievances of the food production system regarding policy and fairness towards the consumer. The call for taking responsibility from the consumer can be concluded from the statement ranked at the negative extreme: "The support for organic agriculture should be provided mainly from the consumer side". A comment by respondent EN1 underlines this theme: "In the case of the food system, pressure for change

needs to be initiated by “violent” measures. A change of consciousness on the consumer side is not enough.” This comment refers to statement 29, so by “violent” measures the respondent probably means to cut subsidies for agro-industry and mass animal production. In the view derived from component 2, a fundamental redesign of the political framework is needed. In this component, there is high agreement (+4) with statement 33 (“All subsidies for agriculture should be oriented much more towards protection of environment and climate”). Many respondents commented on this ranking in line with the following example: “We need political design that goes beyond the elimination of subsidies” (EN1). Thus, compared to the perspective represented by component 1 where the organic sector stands in the middle of attention, in this perspective the political framework plays a more important role.

In component 3, statement 29 is put in the zero-section of the distribution. This can mean different things. Maybe, the respondents do not give much importance to the topic of subsidies for industrial agriculture. Maybe they do not have a strong opinion about it. Or the respondents are not sure about the meaning of the statement. Since no respondent gave any explaining comment on this statement, the reason for the zero-ranking cannot be determined. However, in the perspective represented by component 3, there is very high agreement with the statement that “the future policy needs to take into account the true cost of industrial farming” (2, +5). The ranking of this statement at the positive extreme suggests that the respondents agree that industrial farming practices cause external costs which are something policy has to deal with. Respondent Mi11 commented on the statement, explaining that “[…] it is necessary to take a long-term viewpoint and to evaluate the risk that comes with conventional practices – keyword soil”. In combination with that zero-ranking of the statement in discussion (29), this could mean that in the view derived from component 3, industrial faming is not bad per se – on the contrary, in this viewpoint, it is necessary to “feed the world”. But the negative environmental impact should be made transparent and considered in policymaking. This viewpoint stands in stark contrast to the more critical and demanding perspectives derived from component 1 and 2, because the agro-industry is generally seen as crucial part of the food production system which should not be restricted.

3.3.2 Statements that distinguish one component from the other two

The three statement-rankings which distinguish component 1 with most statistical significance from the other two components are statement 3 (“Food security cannot be achieved with organic agriculture.”), 17 (“More people would choose seasonal, regional and organic food products if they had the financial option”) and 19 (“Organic farming needs to be adopted on a global scale”). Strikingly, statements 3 and 19 are found at the negative (3) and positive (19) extreme of the Q sort. That is, the statements that are most important for the respondents who load on the component are also those which distinguish the component most from the other two. This is only the case for component 1. These statements both deal with the potential of organic farming to “take the lead” in overall agricultural production. In the opinion derived from component 1, there is a high level of trust in the (future) ability of the organic sector to provide food for the world’s population. This is affirmed by the comments on the statement ranking. For example, respondent EN6 states: “Agriculture forms our base of life. With the implementation of organic agriculture (on a global scale), the foundation would be laid for ecological thinking and awareness. We need to preserve the ecosystem we live in since we are part of it ourselves and it forms our basis of life”. Considering the viewpoints represented by components 2 and 3, both statements can be found on the same side (negative for statement 3 and positive for statement 19) or zero-section of the respective Q sort, but never at a very high/low ranking. Statement 3 is found at -2 (component 2) and -1 (component 3), and statement 19 is ranked at +1 (component 2) and 0 (component 3).

For component 2, the distinguishing statements which clearly differentiate the component from the other two are the statements number 10 (“Organic production must continue to grow to

change conventional systems, contributing to solving global problems"), 11 ("The controls on organic farms should be strengthened, eliminating any derogations") and 25 ("Local food production is more important than organic-based food production"). It is noteworthy that all three statements are ranked rather in the center field of the Q sort. Statement 10 is ranked at zero in component 2, while in the other two components, it is found at +3. Thus, in these perspectives, the need for organic production to grow to have an impact is perceived much more important than in the view represented by component 2. From the comments, no reasons can be found for the non-salient positioning of this statement in component 2. However, the rankings of statements that also deal with the growth of organic production suggest that the group deriving from component 2 rather is in favor with the idea of a growing organic sector. For example, there is high agreement (+3) with the quote that "organic agriculture should become a priority within national and EU agricultural policies. It seems likely that the statement is not disagreed with "actively" or seen as unimportant, but that other statements were more urgent in the view represented by component 2. Statement 11 is ranked on the positive side of the scale at +2 in component 2, while the two opinion groups derived from components 1 and 3 do not agree with it. Component 1 ranked it at -2 and in component 3 it is found at -3. Statement 25 is ranked at -1 in component 2, while the other two components have it at +1. In conclusion, the distinguishing statements for component 2 are not as explanatory as the ones found for component 1.

The statements which separate the perspective derived from component 3 from the others are the statements number 24 ("Organic agriculture should become a priority in national and EU agricultural policies"), 30 ("Organic farms can better tolerate periods of drought and other extreme weather fluctuations") and 32 ("Organic farms can better tolerate periods of drought and other weather fluctuations"). Interestingly, statement 32 is ranked at the negative pole of component 3's sort (at -4). This indicates high importance of this statement in component 3. This is interesting, because in the other two components, this statement is found in the zero-section which could be a sign of indifference towards it. The only comment that refers to statement 24 was given by a respondent of component 3: "I cannot imagine they do.. What does "tolerate" even mean? I'd rather think that organic agriculture depends even more on nature and its moods than conventional agriculture does". Thus, even if there seems to be confusion about the meaning of the quote, it ended up at such a strong position. Regarding statements 24 and 32 ("Organic production requires too much land for minimal yield"), the difference between component 3 and the other two is striking. Statement 24 is found at -2 in component 3, while in component 1 and 2 it is ranked at +4 and +3 respectively. The disagreement with this quote may come from the general estimation of respondents loading on component 3, that organic agriculture cannot serve as a model for food production (yet), because is not productive enough. This is emphasized by the third distinguishing statement (32) which is ranked at +2 in component 3 while in component 1 and 2 it is placed at +4. Overall, component 3 seems to differ most from the other two components which show more similarities in the perspectives they represent.

3.4 Common elements of the three viewpoints

The three presented ''typical sorts'' show not only the aspects which differentiate the viewpoints that derive from the components, but also highlight common perspectives. Data analysis identified seven so-called consensus statements. These statements do not distinguish between any pair of components. Table 18 shows a list of the consensus statements colored according to the respective topic category they belong to. The table shows that three of the consensus statements deal with food production, and two statements each are assigned to the categories farming and institutional framework. Regarding the category "organic movement", no consensus statement was identified. Table 18 also presents the rankings of the consensus statements in the single components. Remarkably, most of the consensus statements are

ranked somewhere between -2 and +2. More specifically, for two statements (9 and 16) the strongest ranking value is 1, three statements include value 2 as strongest ranking (14, 21 and 44). The remaining two statements (26 and 42) include rankings stronger than 3. From this information can be drawn that the three opinion groups mostly agree with each other about statements which are probably considered less important.

Table 18: Consensus statements sorted by topic categories with rankings in the components

Consensus statements	Ranking in component 1	2	3	Categories
9. Consumers have more trust in local production, as opposed to organic products, which are globally traded and whose origins and production is not always clear.	0	1+	0	farming
14. If ecological costs would be fully integrated into the price of the products, industrially produced food would be much more expensive.	2+	1+	1+	food production
26. Organically produced food are not more nutritious.	3 -	3 -	2 -	institutional framework
21. Lack of information is a major factor which limits the uptake of organic methods in modern agriculture.	2 -	1 -	2 -	organic movement (incl. Consumers)
44. Organic farms can learn from conventional farms.	2 -	2 -	1 -	
16. Organic products should be widely available in hospital catering, schools canteens, green management and public areas.	1 +	1 +	1 +	
42. The support for organic agriculture should be provided mainly from the consumers' side.	3 -	5 -	5 -	

3.4.1 Consensus statements with the strongest ranking-value +/- 1

In the "middle field" of the components' Q sorts we find the two consensus statements 9 and 16. Regarding statement 9 which deals with consumers' trust in organic vs. local production, there is another topic related statement: "Local food production is more important than organic based food production". This statement (number 25) is also ranked at no more or less than +/-1 in all components. This suggests that the issue of local food production as opposed to organic appears not important to all respondents. Only one comment was given regarding this topic. Mi13 explained her/his indifference considering statement 9 saying: "The notion rather is like – organic… okay well, should be fine". For this respondent, seemingly, the organic label causes trust in the product, no matter of its geographical origin. For statement 16, no comments are available to help interpreting the ranking at +1 in all components. Since this quote does not leave much room for interpretation (no excess meaning), it can be assumed

that the respondents do agree with the statement, but see its content as a rather trivial, side matter of less importance than other statements.

3.4.2 Consensus statement with the strongest ranking-value +/- 2

This section of consensus statements includes the statements number 14, 21 and 44. Statement 14 refers to food prices, saying that they would be higher if all ecological costs would be integrated. In all components, this statement is ranked on the positive side of the distribution grid. Unfortunately, there is only one comment referring to statement 14. It says: “Simply yes!” (EN3) and does therefore deliver no direct information about the reasoning of the ranking. However, it may indicate that the respondents take this statement already for granted, and therefore put it at such a mild ranking. This would imply knowledge about external costs caused by industrial farming practices. Statement 21 and 44 both belong to the category of farming. Statement 21 claims that “Lack of information is a major factor which limits the uptake of organic methods in modern agriculture”. All opinion groups slightly disagree with this statement. However, there are no comments on this statement nor is there another quote that deals with other possible reasons for the limited uptake of organic practices in modern farms. Therefore, the placement of statement 21 can only be considered quite isolated.

Statement 44 deals with the relation of organic farms to conventional farms. All components reflect the opinion, that organic farms cannot learn from conventional farms. This is underlined by comments on statement 44. Respondents (who belong to component 2) state: “I do not see that. They should have opposite approaches.” (EN1) and “Hä?! What should they learn from them?!” (Mi14). Generally, the differences between conventional and organic agriculture are important in all identified groups of perception. Additionally to their common disagreement with statement 44 “Organic farms can learn from conventional farms”, they share the view that the gap between conventional and organic farming is still clear (statement 38 is ranked at -3 in component 1 and 2, and at -1 in component 3). However, for the group derived from component 3, the maintenance of such clear differentiation seems to be less important. On the contrary, it includes support for the idea of overcoming ideological barriers between supporters and opponents of organic agriculture (8, +2). The groups of perception represented by component 1 and 2 appear to put more emphasis on the opposing position of organic agriculture to its conventional counterpart. In their respective sorts, the statements 38 and 44 are ranked at -3 and -2. Thus, in these perspectives, the distinction of organic to conventional farming seems to be an essential and characterizing feature of the organic sector.

3.4.3 Consensus statements including ranking-values equal or stronger than +/- 3

The consensus statements that are found at the “wings” of the components’ Q sorts, i.e. the two poles, are most meaningful. These are the statements upon which all components reflect the same strong opinion. All organic consumers share the perception that organic food is more nutritious (26). While in the groups represented by component 2 and 3, this perceived better quality seems to be the main reason to buy organic food, the group derived from component 1 rather takes this as a matter of fact, a logical result of a more caring handling of nature. For most of the respondents, it was so clear and obvious that organic food is more nutritious, that the comments were partly restricted to only a few words. EN4 (component 1), for example, only commented: “Nonsense”. Respondent EN1 (component 2) added some more: “Nonsense. The salad on my plate tells me, this is nonsense. Industrial food is as nutritious as dust on the street.” However, there is also common agreement considering the concrete expression of the high quality of organic products. The higher quality of organic food is not only manifested in the individual perception of better taste. All components also represent the perspective that there is scientific proof to verify that organic food products are more healthy

and environmentally friendly than conventionally produced food (statement 35 is ranked at -4/-2/-3 in component 1/2/3). This shared conviction of higher quality of organic products illustrates a strong commonality between the three different perspectives.

The most striking common denominator is the disagreement with the quote “The support for organic agriculture should be provided mainly from the consumers’ side”. In component 2 and 3, this statement was even ranked at most disagreement (-5) while in component 1, sustainability features of organic farming seem to be more important. However, also the “deep-rooted organics” valued statement 42 relatively negative (-3). The disapproval of this expression makes sense regarding the notion of all three identified groups of perception that political action is needed to shift the agri-food system towards sustainability, rather than the consumers’ support. Seemingly, all participants view organic farming (and organic food) as “public goods”. Organic agriculture is considered as an activity that has positive impacts on public (i.e. the environment and society). Thus, it should be supported by the government from public funds.

Many comments by respondents of all 3 components confirm this. For example, a respondent who loads on component 1 commented: “The responsibility lies with politicians. Consumers have only limited (financial) opportunities” (EN6). Respondent Mi14 who belongs to component 2 argues that “it should not be a matter of social conditions whether organic is affordable or not. The responsibility must lie with politics”. A comment by a respondent of component 3 is: “This responsibility cannot be put on the consumers’ shoulders, because in this case only people who can afford the premium price of organic products can choose freely and have an impact on the system” (Mi8). All of these comments underline the clear expectations that politics create framework conditions which support organic agriculture and enable prices for organic products which are affordable for all consumers. Even if the perceptions represented by the components differ considering the urgency and form of such policies, all groups agree that it is the government who needs to take action, not the consumers.

3.5 Lost Q sorts

Two of the individual Q sorts (EN7 and YP17) do not load on any component and thus do not belong to any of the groups of perception. Their loadings were not high enough for any of the components. Therefore, the information carried in these Q sorts are lost. However, it is interesting to investigate their characteristics to explore which opinions were “too unique” to fit any of the groups. First of all, it is remarkable that both of these lost Q sorts have their highest loading on component 1, even if the loading was not high enough to be assigned to it (the numbers can be read in Table 9). So probably, the lost Q sorts best correspond to the perspective of group 1.

Contemplating the Q sort of participant YP17, there is only one striking difference to the statement distribution of component 1. It is the statement the respondent most agrees with (the one ranked at +5): “Organic products should be widely available in hospital catering, school canteens, green management and public areas”. In component 1, this statement (16) is ranked only at +1, so quite low importance is given to it. Respondent YP17 commented on the statement’s ranking: “This affects me personally”. The participant’s data collection sheet reveals that she has two children. Maybe she has the desire that her kids get the opportunity to eat organic food in school. I wrote down the additional comment onto the post-interview protocol that there was time pressure during the sorting process. Possibly, the respondent would have shifted the statements around after finishing the ranking if there was more time, and that shifting around could have increased the loading on component 1. However, this can only be speculations.

Considering the Q sort of respondent EN7, the statement distribution is also quite similar to component 1. Still, there are remarkable differences. The respondent placed statement 19

("Organic farming needs to be adopted on a global scale"), which has the highest ranking in component 1, at the low rank +1. This suggests that the respondent does not have such high claims on organic agriculture. Furthermore, statement 3 ("Food security cannot be achieved with organic agriculture"), ranked at -5 in component 1, is placed at -2 in the Q sort. This supports the assumption that for this respondent it seems less important to implement organic principles on a very large scale. However, the ranking of statement 10 ("Organic production must continue to grow to change conventional systems, contributing to solving global problems") at +4 underlines the positive attitude towards the potential of organic agriculture to change the food production system in a positive way. This is emphasized by her comment regarding this statement's ranking: "This is logical. If there is only little of the good things, it will not be enough. We need more of it to reach efficacy". The general focus of this respondent's Q sort on more concrete, practical statements is what differentiates it most from the perspective of group 1.

3.6 Perceived challenges faced by the organic sector

In this chapter, the viewpoints regarding the challenges faced by the organic sector are presented. Each group's perspective is described. The leading questions here are: What challenges does the organic sector face at present? What are possible future challenges for the organic sector? There are 14 statements that express such challenges. An example is statement 32: "Organic production requires too much land usage for minimal yield". 6 more quotes say something about the future development and/or potential of the organic sector at the same time. For example, statement 10 ("Organic production must continue to grow to change conventional systems, contributing to solving global problems") includes a perceived challenge, and at the same time displays potential of the organic sector. The challenge is to (make organic production) grow while the potential lies within the expressed ability of organic production to change conventional systems and to contribute to solutions for global problems. Depending on the ranking of the statement and the context of the respective component, those quotes can express perceived challenges and/or perceived potential of the organic sector.

The perceived challenges in group 1 mostly refer to the establishment of organic farming as the standard way of food production without losing its characterizing features. Group 1 puts a strong focus on organic farming as the most capable sustainable alternative to industrial agriculture. "Organic farming needs to be adopted on a global scale" is the statement placed at the highest positive ranking. In group 1, the biggest perceived challenge is to reach this target while keeping alive the organic principles. "Organic agriculture works only in small scales" commented respondent EN5, emphasizing the need to increase the number of small-scale farms, not the number of hectares per farm. However, respondents in group 1 do not name the linked challenges very specifically. For example, participant Mi9 commented: "It would be possible if some things were a bit different and other things would be taken into account", referring to statement 6 "Organic agriculture can provide more than enough nutrition for the entire European population." Another challenge, however perceived less important, refers to subsidies. Group 1 displays the view that agricultural policies currently hinder a proper spread of organic farming practices. Respondents see that "financial subsidies provided by the EU are not available for small farms" (part of statement 23, ranked at +1) and think that "all subsidies for agriculture should be oriented much more towards protection of environment and climate" (33, +3). However, it seems that all perceived challenges (at present and in the future) are linked to the desire to implement a global organic agriculture.

In group 2, agricultural subsidies are a very important issue, and the perceived challenges for the organic sector are related to this topic. The perspective of group 2 considering agricultural subsidies is ambivalent. On one hand, it is seen most important to withdraw subsidies from agro-industry and mass animal production (statement 29 ranked at +5), and to orient the

subsidies much more towards protection of the environment and climate (statement 33 at +4). Also, it is perceived a problem that EU-subsidies are not available for small farms. On the other hand, group 2 agrees with the statement that “the dependency on subsidies has a very negative effect on autonomy and stability of farms” (7, +3). However, a comment by EN2 on that quote relativizes the statement again, saying that “on the other hand, subsidies can be helpful tools”. Thus, the perceived challenge for the organic sector may be formulated as follows. The organic sector is not subsidized enough. The challenge is to find a way to be more present in political agendas and get access to these subsidies. Simultaneously, organic farms need to (re-)gain autonomy in decision making to ensure their stability and sustainability.

Another challenge that can be derived from an ambivalence in the viewpoint of group 2 refers to the relation between the organic sector and conventional farming. The ambivalence is displayed in the placement of statements 8 (at +2) and 22 (at +1) on the positive side of the scale, and the ranking of the statements 38 (at -3) and 44 (at -2) on the negative side. The first two statements express the need to make overall agriculture more sustainable and emphasize the potential of cooperation between conventional and organic farming. Contrarily, the other two statements underline the important differences between organic and conventional farming. Statement 44 (“Organic farms can learn from conventional farms”) is placed at -2 and strengthened by comments like “I do not see that. They should have opposite approaches” (EN1). Statement 38 (“At present, the gap between “conventional” and “organic” production has become smaller and the differences get blurred”) is ranked at -3 and associated with comments such as “There are clear differences between organic and conventional” (YP16). The challenge for the organic sector that results from these contrary aspects in the group’s perspective could be to stay authentic and at the same time be open to cooperate with conventional agriculture.

In the view of group 3, the organic sector faces two main challenges: first, that prices for organic food are too high for most consumers and second, the perceived low productivity of organic farms. Considering the first challenge, group 3 represents the opinion, that “a more sustainable lifestyle is more costly for the consumer” (5, +4). Participant Mi8 comments on this statement: “Organic food costs more than conventional food”. Thus, for this respondent, a sustainable lifestyle includes the consumption of organic food and, due to the higher price of organic products, is only possible for people who are affluent enough. This viewpoint is confirmed by the placement of statement 17 (“More people would choose seasonal, regional and organic food products if they had the financial option”) at +3 and the additional comment by Mi8: “There is a clear link between financial welfare and the purchase of organic food”. For group 3, the reason for the higher prices of organic food is that the “the true cost of industrial farming” is not taken into account in agricultural policies (2, +5). Respondents of this group also rather agree that “if ecological costs would be fully integrated into the price of the products, industrially produced food would be much more expensive” (14, +1). The respondents perceive these “distorted pricing” as a challenge for the organic sector because the higher prices keep consumers from choosing organic products.

The second big challenge perceived in group 3 is the lower productivity of organic agriculture. “Organic is too small” comments respondent Mi11 on statement 10 (ranked at +3) which states that “organic production must continue to grow to change conventional systems, contributing to solving global problems”. Another comment on this quote’s ranking is: “Organic agriculture needs to become more productive on one hand and on the other should cover more land in total” (Mi13). In group 3, respondents agree that organic agriculture needs to produce more food on the same area. Otherwise, as respondent Mi13 comments, “there will […] be a problem of sufficient production” because “the world’s population is increasing and needs to be fed”. The ranking of statement 41 (“Precision farming and digital technologies are necessary innovations that should be implemented in organic agriculture”) at +4 suggests that in the view of group 3, technology should be used to meet this challenge.

3.7 Perceived potential of the organic sector

The following chapter presents the potential of the organic sector as it is perceived by the interview partners. The three perspectives on the potential are described in the same manner as the perceived challenges above. Considering the potential of the organic sector, the leading question is: What does the organic sector have potential for? Where do the respondents see explicitly no potential? From the 44 statements I found only 4 statements which exclusively tell something about the perceived potential of organic farming. One of them is statement 6: “Organic agriculture can provide more than enough nutrition for the entire European population”. A ranking of this statement at a very high value would express a high perceived potential of organic agriculture to ensure food security in Europe. Another 8 statements could also express a perceived challenge or desired future development of the organic sector, depending on the ranking and context. Statement 3 (“Food security cannot be achieved with organic agriculture”) serves as an example here. Ranked at the positive extreme of the sorting grid, it can be read as a perceived challenge for organic farming. If it is found at the negative pole, it stands for a perceived potential. Most of the statements with ranking-dependent meaning concern perceived potential and challenges, and less the “category” of the desired future development of the organic sector.

Group 1 sees potential in organic farming to provide enough healthy nutrition for the world’s population while ensuring environmental protection and social sustainability. Respondents of group 1 are convinced that food security can be achieved (only) with organic agriculture. This can be read from some of the strongest rankings, e.g. statement 3 (“Food security cannot be achieved with organic agriculture”) at -5 and statement 35 (“There is no scientific proof to verify that organic food products are more healthy and environmentally friendly than conventionally produced food”) at -4. The respondents’ comments on the statements 3 and 19 - which are ranked at the two extremes – further explain the potential they perceive. For example, respondent EN6 states: “In the long term, organic agriculture is more likely to be able to ensure food security, because it maintains the resources it relies on” (EN6 on statement 3) and goes further saying: “With the implementation of organic agriculture (on a global scale), the foundation would be laid for ecological thinking and ecological awareness” (EN6, 19).

Furthermore, group 1 represents the opinion, that the spread of organic farming practices brings along many more benefits than only the production of healthy food. They think that organic agriculture contributes to employment in rural areas, thus bringing in social sustainability aspects (34, -3). Also potential regarding environmental protection is at topic. A respondent explains: “Environmental and climate protection go hand in hand with organic agriculture” (YP21, 33). Such comments underline the meaning of the placement of statement 35 at -4. It expresses the conviction that organic methods are much better for the environment than its conventional counterpart. Group 1 sees great potential in organic agriculture to change the global food production system and to help solving global problems (19, +5; 10, +3). For respondents of group 1, the problem with the current food system lies in its unsustainable practices. “A food system that is based on conventional agriculture will in the long term destroy the resources it relies on: soil, ecosystems” as YP16 explains (commenting on statement 19). Concluding, for group 1, there is high potential in organic farming not only to make the food system more sustainable, but also to be part of the solution for global problems such as climate change. Considering climate change, it was surprising for me that group 1 shows no strong opinion on statements referring to higher resilience of organic farms regarding changing climate conditions. Statement 30 (“Organic farms can better tolerate periods of drought and other weather extremes”) is ranked at zero which could indicate low perceived importance. The topic-familiar statement 40 (“Organic farms can better adapt to volatile fluctuating market prices and climate change”) is placed at -1. This suggests that other topics were perceived more important in group 1. However, it could also mean that there is not much of potential perceived regarding better climate adaptation of organic farms.

In group 2, the focus is on providing healthy affordable food for the consumers by production practices that are environmentally friendly. Seemingly, in these respondents' view, organic farming is only one way amongst many to fulfill this. They do see potential in the organic sector to contribute to an increase of sustainability in the food system. This can be drawn from the combination of rankings of statement 33 ("All subsidies for agriculture should be oriented much more towards protection of environment and climate) at +4 and statement 24 ("Organic agriculture should become a priority within national and EU agricultural policies") at +3. Accordingly, the respondents think that organic agriculture offers protection of environment and climate. However, they perceived potential seems to be rather minimal. Expressive statements like "Organic agriculture can provide more than enough nutrition for the entire European population" (6) and "Organic production must continue to grow to change conventional systems, contributing to solving global problems" (10) are ranked at zero. This may indicate a certain level of indifference of the respondents. Also the critical statements 3 and 19 which talk about the ability to endure food security with organic practices and the need to adopt organic farming on a global scale are ranked rather weakly at -2 (statement 3) and +1 (statement 19). Thus, it can be concluded that group 2, despite the positive attitude towards organic farming in general, does not see very high potential in the organic sector to start a revolution in the food system.

Group 3 sees potential in organic agriculture to contribute to solving global problems, but it is restrained by a perceived insufficiency of organic farming on different levels. That is, in the view of group 3, organic food products are too expensive (5, +4; 17, +3). The respondents have the opinion that "organic agriculture needs to be more productive" (20, +2) and currently "requires too much land for a minimal yield" (32, +2). In their view, organic farming is far from being able to provide food for the European population (6, -4). Only if organic grows in a sense of increasing productivity and increasing area of organically farmed land, it can have an impact (10, +3 and comment by Mi13). However, despite these seeming doubts regarding the "power" of organic agriculture to initiate change, there are some statement ranking which show that there still is potential seen in the organic sector. For example, group 3 displays the opinion that organic farming contributes to employment in rural areas (34, -3). The ranking of the statement is commented by respondent Mi11: "While conventional agriculture in combination with urbanization leads to people leaving rural areas, organic agriculture requires more human power". Furthermore, respondents of group 3 think that organic food is more nutritious (26, -2), that its production is better for the environment (35, -3) and that it provides improved animal welfare (31, +1). Thus, group 3 may see potential in organic farming, but it can only be fully used if it gets bigger and more productive in the first place.

3.8 Consumers' perspectives for the future development of the organic sector

The following paragraphs are about the perceptions of possible and/or desired future developments of the organic sector. The aim is to gain insight in which possible pathways the organic consumers of three different groups see for the organic sector. The two leading questions to achieve this are: What future development do the consumers wish for the organic sector? In their view, what are realistic future scenarios for the organic sector? Out of the 44 used statements, I found 12 quotes useful for the purpose of answering these questions. An example is statement 11 "The controls on organic farms should be strengthened, eliminating any derogations". Placed at a positive ranking, this quote clearly describes a desired future scenario. Additionally, I identified 3 statements which could carry information about how the respondents see the future of the organic sector but may also say something about the perceived challenges and/or potential of organic farming. Here, statement 22 ("Smart combinations of organic and conventional methods could contribute towards increases of sustainable farming in global agriculture") serves as an example. This quote partly describes a potential (to increase sustainability) but also includes information about a desirable future

development of the organic sector (to cooperate with conventional agriculture). For these statements, the prevailing meaning depends on the given context of the respective component. In the following, the perceptions regarding the future development of organic farming is described for the three identified groups.

Group 1 is characterized by a very optimistic and clear vision for the future development of the organic sector. The “big aim, the ambitious goal”, as respondent EN4 formulates, is the adoption of organic farming on a global scale (statement 19 ranked at +5). All future developments linked to the organic sector, in the viewpoint of group 1, should serve the achievement of a global organic agriculture. Most importantly for group 1, agricultural policies need to change. These policies form the framework for agriculture in general, as well as for the organic sector specifically.

Respondents of group 1 wish for a future agricultural policy which is more focused on environmental and climate protection with organic agriculture as a priority (24, +4; 33, +3). Respondent EN6 explains: “What we need is governmental regulation to provide proper framework conditions for organic agriculture to bloom. The government carries the responsibility to provide the necessary structures” (EN6, 42). Special attention is given to subsidies. From the viewpoint of group 1, prioritizing organic agriculture (which includes support via subsidies) comes as a logical consequence of political orientation towards environmental protection. Respondent YP21 comments on statement 24: “With environmental protection becoming a priority on an EU level, organic agriculture is bound to become a priority in agricultural policies”. This also implies the restriction of industrial agriculture (including the withdrawal of subsidies) which is seen as clear counterpart of organic farming (29, +4). For group 1, the redirection of agricultural subsidies as important political instrument forms the basis for any other action. However, the respondents’ image of the future development of the organic sector includes several other aspects.

Regarding politics, group 1 furthermore represents the opinion that stakeholders of (organic) agriculture should be more involved and get more room to maneuver. This can be drawn e.g. from the ranking of statements 27 and 28 at +2. Statement 28 calls for a policy that provides more room for organic farmers to develop sustainable solutions more autonomously. In group 1, this relates to the disagreement with statement 11 (ranked at -2) which expresses the wish for stricter controls on organic farms. Statement 27 says that small-scale producers and consumers should have a significant voice when it comes to decision-making in agricultural politics. Together with statement 37 (“Consumers need to have a greater understanding of the work involved in food production”) ranked at +1, this indicates that respondents of group 1 wish for better informed and interested consumers who take part in food politics. The implication for the future development of the organic sector may be to also take an educating role. However, this assumption is again questioned by the placement of statement 1 at -1 which states that organic farming needs to improve communication towards consumers.

Regarding the future development of farming practices in organic agriculture, group 1 stands for a focus on “traditional” organic practices and principles. The application of digital technologies and precision farming in rather rejected (statement 22, ranked at -1). Considering this notion, YP16 argues: “This is a modern fairy tale. We do not need that. This is something that is once again adapted to mass production” (YP16, 41). Furthermore, group 1 insists on a clear distinction of organic farming from conventional agriculture. The respondents do not think that organic farms can learn from conventional farms (44, -2). They also rather disagree with the idea that combinations of organic and conventional methods could bring positive results (22, -2). Respondent EN5 rather sees opponents in organic and conventional agriculture, arguing that “organic needs to drive out conventional agriculture” (EN5, 10).

In group 2, the ideal future development of organic farming involves authenticity and decent growth. There is no emphasis on a global, or even wide-spread organic agriculture. Respondents of group 2 have no expectations for the organic sector to transform the whole

food system. In their view, organic farming is one option out of many to produce food in a sustainable way. This option needs to stay “pure” and must not become “softened”. Organic needs to stick to its principles and stay truly sustainable. This should be guaranteed by strengthening the controls on organic farms, eliminating any derogations (statement 11 ranked at +2). Neither should organic farms learn from conventional farms (44, -2). As respondent EN2 explains, “they should have opposite approaches”. In group 2, there is no need seen to increase productivity in organic farming, but to “stay real”.

However, in the opinion of group 2, the organic sector should neither isolate from the overall food sector. For the good of higher sustainability in the food sector, “ideological barriers between supporters and opponents of organic agriculture need to be overcome” (statement 8 ranked at +2). Respondent Mi12 comments: “There cannot be progress if we work with ideologies” (Mi12, 8). Also, combinations of organic and conventional methods are tolerated in group 2 (22, +1). However, respondent YP18 comments that “local circumstances need to be taken into account” (YP18). This suggests that in group 2, cooperation between organic and conventional agriculture is tolerable under certain circumstances.

Considering the future of the organic sector, agricultural policies play an important role for group 2. “We need political management!” is a comment by respondent EN1 on statement 2. In the respondents’ opinion, organic farming should be a priority in policies, because it is good for health and environment (33, +4; 24, +3). Subsidies are perceived an important tool to direct the development of the agri-food sector. There is very high agreement on the statements 33 (+4) “All subsidies for agriculture should be oriented much more towards protection of environment and climate” and 29 (+5) “Agro-industry and mass animal production must be restricted an subsidies withdrawn”. This is underlined by the comment of respondent Mi14 on the same statement: “What is proven to be seriously bad for health and environment mustn’t be subsidized!”.

In any case, in group 2, it is perceived very important to decouple consumers from responsibility for supporting the organic sector (42, -5). EN1 comments on his ranking of statement 29 (+5): “In the case of the food system, pressure for changes needs to be initiated by “violent” measures. A change of consciousness on the consumer side is not enough”. In the view of group 2, politics must establish circumstances that make it easy and feasible for consumers to lead a sustainable and healthy lifestyle in matters of food. Respondent Mi14 comments on this issue: “If external costs start to be included into the price, this question [if a sustainable lifestyle is more costly for the consumer] wouldn’t be asked anymore”. The main message here is that the responsibility to support the organic sector should be taken from the consumers and given to politics in the (near) future.

Regarding the involvement of organic stakeholders into future decisions regarding the design of policies and farming methods, group 2 shows indifference. This can be read from the placement of the statements 27 (“Small-scale producers and consumers should have a significant voice in the political decisions concerning food and agriculture”) and 28 (“Organic farmers should be given more room to autonomously develop sustainable solutions”) in the zero-section of the sorting grid. No comments offer additional explanations to these rankings. Maybe it is only important for group 2 that the system changes, not who initiates the transformation and how it is carried out.

In the view of group 3, the organic sector needs to grow and become more productive if it wants to have an impact (statement 10 is placed at +3). Respondents of this group have the opinion that the organic sector needs to be more open towards new innovations like precision farming and digital technologies to achieve this (statement 41 is ranked at +4). To further support the growth and increase in productivity of organic farming, group 3 takes the view that controls on organic farms should not be strengthened (11, -3). Regarding this statement, respondent Mi11 argues comments: “More control means more bureaucracy and therefore higher costs. I am against this”. Furthermore, it seems to be acceptable for group 3 to

cooperate with conventional farms (22, +1), even if there is slight disagreement with the quote that “organic farms can learn from conventional farms” (44, -1). However, apparently group 3 takes the view that the future development of the organic sector should be characterized by growth and increased efficiency in production.

Regarding the support for the organic sector to achieve this, respondents of group 3 emphasize the need to relieve consumers from responsibility. Accordingly, statement 42 (“The support for organic agriculture should be provided mainly from the consumers’ side”) is ranked at the negative extreme of the sorting grid. “This responsibility cannot be put on the consumers’ shoulders, because in this case only people who can afford the premium price of organic products can choose freely and have an impact on the system”, comments respondent Mi8 on this topic. It is seen the responsibility of politics to ensure a pricing that reflects the true costs of products, including externalities (see statement 2 ranked at +5). This way, sustainable food products should become cheaper than industrially produced food, thus making it lucrative for consumers to buy sustainably produced products.

However, it appears that for group 3, organic farming plays a minor role in providing such sustainable food product. Thus, can be drawn from the combination of the ranking of statement 33 at +3 and statement 24 at -2. The first one expresses agreement with the quote that “all subsidies for agriculture should be oriented much more towards protection of environment and climate”. This indicated that the respondents of group 3 think that sustainable agricultural practices should get financial support. Statement 24 says: “Organic agriculture should become a priority within national and EU agricultural policies”. Group 3 does not agree with this quote, which indicated that the respondents think that that organic farming may not be the best solution to ensure sustainability in the agricultural sector (yet). Furthermore, statement 29 (“Agro-industry and mass animal production must be restricted and subsidies withdrawn”) is found in the zero-section of the ranking. This could mean that the respondents of group 3 perceive conventional agriculture necessary, even if there is also perceived need to “take a long-term viewpoint and to evaluate the risk that comes with conventional practices” as respondent Mi11 comments on statement 2 (+5). In the perspective of group 3, organic farming seems to be not ready to provide a solution to sustainability problems in the agri-food sector and will not have the power to arrive there without strong support from the side of politics.

4 Discussion

4.1 Discussion of the method

Q methodology proved to be a good approach to explore consumers' viewpoints on the organic sector. It enabled me to find out their expectations and ideas regarding the organic sector. The identification of three "typical" perceptions (derived from the three components) out of 19 individual opinions (2 of the 21 Q sorts did not load on any component) facilitated the understanding of the consumers' thinking patterns. The additional qualitative interviews supported the interpretation of the quantitative findings. The participants' comments were very helpful in understanding reasons for and interrelations between statement rankings within the single components. They were an essential part of the data without which I might have misinterpreted some of the results from data analysis. The combination of quantitative and qualitative data enabled me to comprehend how the participants perceive the challenges, potential and future of organic farming.

The decision to conduct the data collection in face-to-face interviews allowed me to directly answer technical questions regarding the sorting procedure as well as comprehension questions regarding individual statements. Furthermore, during the interviews, several interesting discussions came up which encouraged participants to provide more detailed comments on their sortings. Thus, the individual perspectives could be documented more comprehensively and thus later on enabled a deeper understanding of the identified typical viewpoints.

The research project which formed the context of the present study influenced the results to a certain degree. The project aims to explore consumers' perceptions at EU-level. Preparations for the national empirical studies were made jointly by all participating researchers. To ensure that the same set of statements could be used for all national studies, the researchers selected statements without reference to specific national conditions. This had the effect that certain statements were less relevant to Viennese consumers (and therefore ranked as "neutral"). However, this did not seem to be a problem, since none of the participants were confused by any statement's content. This indicates that the discourse about the organic sector includes similar topics in the five participating countries. Another consequence of the collaborative creation of the statements is that no Austria-specific statements were included. Therefore, the results do not refer to issues specific to the Austrian organic sector, but mostly to organic farming in general.

During the collection of statements, it was very helpful to create subtopics for structured research. However, this way we excluded some topics that might have been important for some participants. For example, in the literature I reviewed, social aspects of organic farming were discussed more than they were represented in the present study. Only one statement in the Q sample directly refers to a social topic (statement 34 "Organic agriculture does not contribute to employment in rural areas"). With more quotes relating to social aspects of organic farming, the overall results might have been different.

Regarding the selection of the participants, two decisions had an influence on the results. First, we restricted the target group to consumers who buy organic food regularly. This had the advantage that most of them knew a lot about (organic) food production and had a strong opinion about it. They were quite informed about related topics like agricultural subsidies and were familiar with terms such as "ecological costs" and "sustainability". This made the ranking procedure easier for them. However, the narrowing of the target group brings a one-sided perception. Other stakeholders and consumer groups probably have different perceptions. The second decision which had an influence on the results was the use of my personal social

network to recruit the participants. It can be assumed that their attitudes are more similar than they would have been in a random sample. Consequently, the present study allows only a limited conclusion about the perceptions of all regular organic consumers in Vienna.

4.2 Discussion of the results

According to the literature I reviewed, some actors of the organic movement see the organic sector at a critical point. They perceive the need for a new orientation and positioning of the organic sector (Niggli et al., 2015). The literature furthermore showed that some ideas regarding the further development of the organic sector include the image of empowered consumers. Especially in the formulated vision "Organic 3.0" (Rützler & Reiter, 2014), emphasis is put on the involvement of stakeholders, including consumers. Organic 3.0 is a strategy paper that includes a plan for the organic sector. Accordingly, (future) organic farming will contribute to a transformation of the agri-food system towards sustainability (Arbenz et al., 2016). In the literature it is described that consumers, their attitudes and consumption patterns play a crucial role for any transformation of the agri-food system, since they are an essential part of it (Tauscher et al 2003, cited in Rahmann et al. 2017, 186). Thus, the consumers' opinions, perceptions and expectations regarding organic farming are important for decision makers and other stakeholders of organic sector when it comes to a new positioning of organic farming or similar plans (Rahmann et al., 2017).

In Austria, about 60% of the population buy organic food products at least once a week (Agrarmarkt Austria - Marketing, 2018) and therefore fall under the category of regular organic consumers (as defined for the present survey). My study focuses on these consumers' perceptions of organic agriculture. The results confirm studies about motives of regular organic consumers for purchasing organic food. These are personal benefits like healthy nutrition on one hand, and benefits concerning environmental and social sustainability on the other (Agrarmarkt Austria - Marketing, 2018). However, in contrast to previous studies on organic consumers, this study does not focus on purchasing motives. It rather aims to reveal the consumers' underlying thinking patterns, ideas, and attitudes regarding organic farming. The study identifies three different perspectives on organic farming regarding its challenges, potential and future development. The three groups which represent the different perspectives are called deep-rooted organics (group1), critical organics (group 2) and sceptical followers (group 3).

Although all interview partners are regular organic consumers, their perspectives were found to differ in many points. Especially group 3 takes a viewpoint that I would not have expected. Its members showed lots of skepticism considering the sense and meaningfulness of organic farming. They put a surprisingly high emphasis on the insufficiency of organic agriculture regarding its productivity. Furthermore, the sceptical followers recommend more willingness to cooperate with conventional agriculture and to make use of new technologies. However, only 3 respondents out of 21 are part of group 3. The majority is found to belong to group 1, the deep-rooted organics. In the following, I summarize the results of the present study and compare them to some of the literature I reviewed to answer my research questions.

<u>What challenges does the Austrian organic sector face, as perceived by the respondents?</u>

Regarding challenges faced by the organic sector, the results show clear differences between the three perspectives. For deep-rooted organics (group 1), the main challenge faced by the organic sector is to stay in line with the organic principles while growing. "Organic farming needs to be adopted on a global scale" (statement 19, ranked at +5) is the paradigm for these consumers. In their view, the organic sector must find a way to reach this target without losing it characterizing features. The critical organics (group 2) see one challenge in gaining access to agricultural subsidies while staying autonomous. In their view, subsidies must be reallocated to support the organic sector. At the same time organic farms need to (re-)gain autonomy

which these consumers see at risk with increasing dependency on subsidies. Another challenge perceived by the critical organics refers to the relation of organic farming to conventional farming. In their view, the organic sector must find a way to stay authentic and at the same time be open to cooperate with conventional agriculture for the sake of overall higher sustainability. Group 3, the "sceptical followers" also perceives two big challenges faced by the organic sector. First, that - due to a lack of true cost accounting – organic food products are too expensive for most consumers. Second, the low productivity of organic farms is perceived as a problem. Thus, the three groups perceive challenges faced by the organic sector regarding three different subject areas: spread of organic farming, subsidies, and pricing.

Some of the challenges perceived by the interview partners overlap with those described in the literature. One of these described challenges is a growing policy intervention in the European organic sector. Actors of the organic movement are concerned that "the organic sector has lost control over its own destiny and that policy makers are now writing the rules, perhaps trying to accommodate the needs of large corporations and free trade rather than the principles put forth by the pioneers of the organic movement" (Geier et al. 2007, p.272). To find a right balance between growth and preservation of the core organic principles is named as an overarching challenge for the organic sector. Groups 1 and 2 share some parts of this concern. The deep-rooted organics also see a challenge in staying focused on the organic principles with organic becoming increasingly mainstream. The critical organics perceive a challenge in finding a way to be more present in political agendas and simultaneously stay autonomous. Furthermore, pressure to increase productivity of organic production is described to pose difficulties for the organic sector (Shock, 2016, p.vi). The perspective of the sceptical followers (group 3) confirms this statement in a sense that these consumers indeed see the need to increase the productivity of organic farming. Thus, they rather reinforce the described pressure.

Some of the challenges named in the literature, however, are not perceived urgent or important by the interview partners. For instance, the high level of bureaucracy associated with organic certification (Schmid, 2007, p.171) is considered no or only a minor challenge by the participants. This can be drawn from the ranking of statement 12 ("Regulations for organic farmers and producers must be simplified") at 0 (component 1), -1 (component 2) and +2 (component 3). Furthermore, in the literature, the competition by other sustainability initiatives in the food market is described as a challenge faced by the organic sector (Sahota, 2019, p.149). The relating statement 13 ("Organic farming and the organic food sector is currently competing with other sustainability initiatives") is ranked at -1 (component 1), -2 (component 2) and 0 (component 3), indicating low importance of the topic and rather disagreement with the assumption that other sustainability initiatives are a problem for the organic sector. To improve communication with the consumers is another challenge named in the literature which is not perceived as such by the interview partners. Statement 1 "Organic farming and food sector needs to improve communication towards consumers" is placed at -1 (component 1), 0 (component 2) and -2 (component 3). Thus, the interviewees perceive only some of the challenges named in the literature as such.

What potentials do the respondents perceive for the Austrian organic sector?

The results show that perceptions regarding the potential of and for the organic sector in Austria differ amongst the identified groups. The deep-rooted organics are confident that organic farming has the potential to produce enough food for the European (and the world's) population in a way that protects nature and people. They furthermore see potential in organic farming to support rural development (statement 34 "Organic agriculture does not contribute to employment in rural areas" is ranked at -3 in component 1) and contribute to environmental protection (e.g. statement 35 "There is no scientific proof to verify that organic food products are more healthy and environmentally friendly than conventionally produced food" ranked at -4 in component 1). This is supported by many comments such as "Environmental and climate

protection go hand in hand with organic agriculture" (YP21, 33). In the view of group 1, organic agriculture has potential to change the food production system and help solving global problems (19, +5; 10, +3). Remarkably, the findings also show that members of group 1 do not think that organic farms are more resilient regarding changing climate conditions. This is surprising due to the general confidence considering benefits of organic farming in this group. Literature suggests higher resilience of organic farms compared to conventional farms (see Azadi et al. 2011; IFOAM et al. 2016; Niggli et al. 2007) . Since the deep-rooted organics appear to be very informed about food production, I would have assumed that they have a stronger opinion about that. However, amongst the three groups, the deep-rooted organics see most potential in organic farming.

The critical organics perceive personal and sustainability benefits of organic farming but are not convinced that the organic sector currently has potential to drive change in the agri-food system. Members of group 2 take the view that organic farming practices are more environmentally friendly than conventional ones (statement 35 "There is no scientific proof to verify that organic food products are more healthy and environmentally friendly than conventionally produced food" is ranked at -2). However, the perceived potential of the (Austrian) organic sector to have an impact seems to be rather low. This can be drawn from the "zero-rankings" of expressive statements like "Organic agriculture can provide more than enough nutrition for the entire European population" (6) and "Organic production must continue to grow to change conventional systems, contributing to solving global problems" (10). Also the critical statements 3 and 19 which talk about the ability to endure food security with organic practices and the need to adopt organic farming on a global scale are ranked rather weakly at -2 (statement 3) and +1 (statement 19). This may indicate a certain level of indifference of this group and their assumption that currently, organic does not carry potential to start a revolution in the agri-food sector.

Group 3, the sceptical followers, takes a similar, yet even more critical view. Although they recognize beneficial aspects of organic farming too (nutritious food, environmental protection, and animal welfare – see statements 31 and 35 ranked at +1 and -3), they perceive only limited potential for the organic sector to contribute to overall higher sustainability. This is due to their impression that organic agriculture is currently too small and not productive enough (see e.g. statements 20 and 6 at +2 and -4). Thus, the perceptions of groups 2 and 3 stand in strong contrast to the view of group 1 who appears to trust in organic to be the sole solution for problems in the agricultural sector. However, the results show that there is common agreement amongst all respondents that agricultural policies need to be adapted to support organic farmers. It is thus commonly seen the responsibility of politics to provide appropriate framework conditions for the organic sector to thrive and unfold its potential, however big or small it may be perceived.

The literature I reviewed describes organic farming as a more sustainable form of food production compared to conventional systems (see e.g. Eyhorn et al. 2019; Meemken and Qaim 2018). Regardless of the group they belong to, all interview partners agree in this point. However, the groups differ regarding its perceived importance. The deep-rooted organics take the increased sustainability as the argument for the potential of organic farming to ensure food security in the long term. Respondent EN6 declares: "In the long term, organic agriculture is more likely to be able to ensure food security, because it maintains the resources it relies on". This perception matches the estimation by Arbenz et al. (2016) that organic agriculture has the potential to help establish truly sustainable food production systems. However, the remaining two groups put more importance in the provision of healthy, nutritious food by organic agriculture than in sustainability issues.

Remarkably, the reasons for the low potential perceived by group 3 correlate with a viewpoint that is described to be taken by advocates for conventional agriculture (Eyhorn et al., 2019). That is, they both claim that organic agriculture uses too much land for too little yield.

Advocates for conventional farming go one step further, arguing that the sustainability per unit of organic product is questionable (Eyhorn et al., 2019). Since this claim was not included in the Q study, it cannot be determined if the sceptical followers take this view as well.

Two main narratives concerning the potential of the organic sector can be derived from the findings. The first is represented solely by the deep-rooted organics. They see the main potential of organic farming in changing the agri-food system towards sustainability, thus contributing to solving global problems. The second one is supported by the critical organics and the sceptical followers. For them, the main potential of the organic sector lies in the provision of healthy, tasty, and nutritious food. They also acknowledge the higher environmental and social sustainability of organic farming. However, this plays a minor role for them. These results of a survey by Agrarmarkt Austria (2018) partly mirror the results from the Q study I conducted. The survey by Agrarmarkt Austria (2018) reveals that the main motives for regular organic consumers in Austria are associated with personal benefits like healthy nutrition. This is the case for the members of group 2 and 3 who, if summed up, are the majority. The survey furthermore describes that concerns about the environment or social issues have less influence on the purchase decision. However, for group 1, such sustainability issues seem to be most important.

All three groups of perception appear to neglect the topic of increased resilience of organic farms. My interview partners expressed either indifference or disagreement regarding relating claims. Statement 40 “Organic farms can better adapt to […] climate change” is ranked at -1/-2/-1 in component 1/2/3, and statement 30 “Organic farms can better tolerate periods of drought and other extreme weather fluctuations” is placed at 0 in components 1 and 2, and even at -4 in component 3. Contrarily, the higher resilience of organic farms is a frequent topic in the literature I reviewed. It highlights the ability of agro-ecosystems of organic farms to better adapt to changing and more extreme climate conditions (Azadi et al., 2011; Niggli et al., 2007; Rützler & Reiter, 2014). The consumers I interviewed seem to have doubts about this or perceived it as a less important side effect.

What are the respondents’ perspectives and ideas concerning the future development of the organic sector in Austria?

The respondents’ ideas about the further development of the organic sector diverge strongly. Although the perceived potential and challenges of single groups overlap at some points, the perspectives concerning the future of organic go in different directions. The deep-rooted organics have quite a clear and optimistic vision. They want organic farming to grow in a sense that more and more farms convert to organic (10, +3; 19, +5). Meanwhile, in their view, the organic sector must stick to the organic principles without making compromises. The deep-rooted organics insist on a clear distinction of organic farming from its conventional counterpart (44, -2; 22, -2). They also rather reject the application of new innovations such as precision farming and digital technologies (22, -1). To support this desired development, respondents of group 1 call for a future agricultural policy that is oriented much more towards environmental protection (33, +3). In the view of group 1, such reorientation would automatically imply a prioritization of organic farming in these policies. Respondent YP21 explains this in a comment on statement 24: “With environmental protection becoming a priority on an EU level, organic agriculture is bound to become a priority in agricultural policies”. The deep-rooted organics furthermore wish for more inclusion of stakeholders, especially farmers and consumers, in relevant political decisions (27, +2; 28, +2). All these specific ideas for the future development of the organic sector follow “the big aim” of a global organic agriculture (19, +5).

Contrarily, neither the critical organics nor the sceptical followers have expectations for the organic sector to take over the whole food production system. However, the perspective of the critical organics regarding the future development of the organic sector involves the maintenance of its authenticity. To guarantee true sustainability of organic practices, they think that controls on organic farms should get strengthened (11, +2). Although the critical organics

demand organic to “stay real”, the results suggest that they would tolerate future cooperation between organic and conventional agriculture, if such cooperation serves increased overall sustainability in the agri-food system (8, +2; 22, +1). Regarding the political and economic framework conditions, critical organics see the need for a focus on organic farming in future agricultural policies (33, +4; 24, +3). Furthermore, they have the opinion that it is essential to decouple consumers from responsibility for supporting the organic food sector (42, -5). From their point of view, policies must create circumstances that make it easy and feasible for consumers to choose organic food. Comments such as “We need political management!” (comment by EN1 on statement 2) and “In the case of the food system, pressure for changes needs to be initiated by “violent” measures. A change of consciousness on the consumer side is not enough” (EN1, 29) support this interpretation.

This perspective is shared by the sceptical followers (42, -5). The sceptical followers emphasize the responsibility of politics to ensure a pricing that reflects the true costs of production, including externalities (2, +5). This would cause incentives for farmers to produce food sustainably and for consumers to buy these sustainably produced products. However, generally, the sceptical followers see the need for the organic sector to become more productive (20, +2). Organic farming should therefore make use of modern innovations like precision farming and digital technologies (41, +4). The sceptical followers think that the agri-food system need to be changed towards sustainability but perceive that the organic sector is not ready (yet) to initiate such a change. To arrive there, in the view of the sceptical followers, the organic sector depends on strong political (and financial) support.

In the literature I reviewed similar differences in opinions about the future development of the organic sector are described (Azadi et al., 2011; Eyhorn et al., 2019). Actors of the agri-food system (and also those of the organic movement) do not fully agree about the desired future of organic. Similarities to the opinions of all three groups can be found. For example, Azadi et al. (2011, p.93) as well as associations which represent the organic sector such as IFOAM argue that a shift to organic agriculture will be “more and more essential […] to secure food production in the future”. This viewpoint correlates with the vision and opinion supported by the deep-rooted organics that food security, in the long term, can only be ensured with organic farming because of its sustainable management of natural resources.

Arbenz et al. (2016), go further, stating that organic agriculture should “serve as a tool” to establish truly sustainable food systems. This should be achieved by further development and improvement of used techniques (in accordance with the organic principles) on one hand. On the other hand, an increased conversion rate of conventional farms must be supported by means of cooperation (Arbenz et al. 2017). This approach is more in accordance with the perspective of group 2, because in this group, cooperation with conventional farms is tolerated. Contrarily, in group 1, such cooperation seems to be rather a no-go. The viewpoint of group 3 partly correlates with an opinion that is described to be taken by advocates for conventional agriculture. That is, that organic agriculture does not offer a realistic alternative for overall food production due to its low productivity (Eyhorn et al., 2019).

The literature furthermore shows two main narratives regarding pathways to sustainability in agri-food systems (Eyhorn et al., 2019). The first narrative includes a fundamental redesign of the system, based on agroecological principles. This correlates most with the vision for the future of organic by the deep-rooted organics. The second narrative describes the ideal future development as a mixture of improvement of conventional farming practices regarding efficiency and a simultaneous reduction of negative externalities (Eyhorn et al., 2019). In group 3, this narrative is mirrored at least regarding the part that its respondents see conventional agriculture as necessary – at present as well as in the (near future).

5 Conclusion

The identified opinions about the organic sector differ strongly, although the participating consumers belong to a very narrow target group. The research aimed to explore the discourse about the organic sector amongst regular organic consumers who live in Vienna. Three different perspectives on challenges, potential and future development of the organic sector were identified. The groups' perceptions differ regarding topics such as the possibility (and desirability) to ensure food security with organic farming and the attitude towards agro-industry and new technologies. However, the results show a clearly shared opinion regarding the responsibility to support the organic sector. All three groups agree that organic farming has positive impacts on public goods such as the environment (e.g. biodiversity, soil functionality, climate stability) and rural vitality. Therefore, they share the view that organic farming must be supported by the government, using public funds.

The identification of the different perceptions and their comparison uncovered three different attitudes with associated wishes for the future development of the organic sector. Group 1, the deep-rooted organics, make up the majority of interviewees. This group is convinced of the power of the organic sector. Its members wish for a spreading of organic farming practices in Austria as well as on a global scale. They also endorse increased inclusion of all stakeholders into decision processes related to the agri-food system. In the perspective of group 2, the critical organics, the organic sector should make an effort to "stay real", i.e. to keep in line with the organic principles. At the same time, in their view, it should allow exchange and cooperation with conventional agriculture, if such cooperation helps to increase sustainability in the agri-food system. Group 3 is labelled sceptical followers. Its members are sceptical about how much sense organic farming makes, but they still purchase organic food on a regular basis. In their opinion, organic agriculture is not productive enough and therefore not ready to have an impact on the agro-food system. From their point of view, the organic sector should implement modern innovations to improve its productivity and must get more support from the government. These striking differences in the consumers' perceptions may reflect the difficulty for the (Austrian) organic sector to find a proper positioning in the agri-food system that meets the requirements of all relevant stakeholders.

Presently, the Austrian organic sector is seen as very well established in the Austrian agri-food system. Within Europe, it maintains a leading position regarding the share of organic with 24,7% of the agricultural area being certified organic (BMNT, 2019, pp.54-55). More than half of the population in Austria buys organic food products on a regular basis (Agrarmarkt Austria - Marketing, 2018), and the food market share of organic products keeps growing (RollAMA, 2019). The organic sector also entered political agendas. In Austrian, organic farming is supported by different means - above all by the agri-environmental program ÖPUL which provides financial compensations for the environmental performance of organic farms (BMLFUW, Grandl, Weber-Hajszan, & Neudorfer, 2015). However, there is a critique regarding the broader agri-political framework at the EU-level: the Common Agricultural Policy CAP. NGOs and scientists argue that the current CAP, although it has provided a framework and support for organic agriculture, fails to respond to current challenges (Global 2000, 2019; Pe'er et al., 2020). Decisions about the next CAP period (2021-2027) are still pending. They will have a big impact on the future development of the organic sector in all EU countries. While scientists emphasize the need to support sustainable forms of farming to tackle sustainability challenges, budget cuts are planned for the related funding pool (Pe'er et al., 2020).

At the same time, the organization that represents the organic sector at the international level – IFOAM Organics International – has big plans regarding the future development of organic farming. They developed a strategy paper for this purpose, named Organic 3.0. It describes the vision to use organic agriculture as a tool to make the overall agri-food system "truly sustainable" (Arbenz et al. 2016). The authors outline a new positioning of the organic sector

and describes in detail what needs to be done and how the organic sector plays a key role to achieve the goal of an overall sustainable agri-food system (Arbenz et al., 2016). An essential part of the strategy is the cooperation with all relevant stakeholders, including consumers. In the end, the targets formulated in Organic 3.0 can only be achieved if they are in line with the consumers' expectations (Rahmann et al., 2017). The results of the present study indicate that this is basically the case for regular organic consumers who live in Vienna.

For the Austrian organic sector, the findings of the present study indicate the need to consider the diversity of consumers' perspectives. The most obvious result of the present research is that these perspectives differ strongly even within the spectrum of those who buy organic food on a regular basis. The organic sector in Austria should take this into account when making decisions and creating plans for its own future development. Its strategies regarding communication, public relations and marketing should consider the respective consumers' expectations. The findings furthermore suggest several courses of action for policy makers. In the view of all identified opinion groups, greater efforts from the government are needed to support for organic farming as a more sustainable agri-food system. The results also indicate the need for further research on consumers of a broader range. The narrow target group of the present study does not allow a general conclusion about consumers' perceptions of the organic sector. However, despite its limitation, the study adds to our understanding of organic consumers' attitudes and their underlying thinking patterns regarding organic farming.

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9 Annex

9.1 Annex 1: Data collection sheet

Data Collection Sheet

1. How do you identify the products of organic agriculture?

2. How often do you purchase organic food?

Dairy products:	more than once a week	weekly	monthly	less frequently
Meat:	more than once a week	weekly	monthly	less frequently
Fruit/vegetables:	more than once a week	weekly	monthly	less frequently
Bakery:	more than once a week	weekly	monthly	less frequently

All information will be used only for the purpose of the research study and will not be provided to any other subject. The information from the interviews will be presented in aggregate form and never with a reference to a specific person.

Name of the participant will be substituted with an numeric ID during the statistical analysis. The name of the given person will be deleted before the data procession.

Name	ID

3. Identification of the participant

Gender: Year of birth: Place of living (town):

Family status: Number of children:

4. Comments for the q-sorting

Can you provide brief comments of the statements that have been placed on the +5 and +4 score?

Can you provide brief comments of the statements that have been placed on the -5 and -4 score?

Additional comments?

9.2 Annex 2: Respondents‘ comments

9.2.1 Comments by respondents belonging to Component 1 (“deep-rooted organics”)

Ad 19 (+5): **Organic farming needs to be adopted on a global scale**:

- “A global organic agriculture needs to be the big aim, the ambitious goal we need to strive to (utopia)” (EN4).
- “Agriculture forms our base of life. With the implementation of organic agriculture (on a global scale), the foundation would be laid for ecological thinking and ecological awareness. We need to preserve the ecosystem we live in since we are part it ourselves and they form our basis of life.” (EN6)
- “Organic agriculture can provide (be one form of) environmental protection” (YP15)
- “A food system that is based on conventional agriculture will in the long term destroy the resources it relies on: soil, ecosystems. Keyword: external costs.” (YP16)

Ad 24 (+4): **Organic agriculture should become a priority within national and EU agricultural policies**:

- “Together with the growth of organic production (10), this is one big step towards achieving the big goal of a global organic agriculture. If parts of a system change, the system will change in the end.” (EN4)
- “With environmental protection becoming a priority on an EU level, organic agriculture is bound to become priority in agricultural policies. Organic agriculture and environmental protection go hand in hand.” (YP21)

Ad 29 (+4): **Agro-industry and mass animal production must be restricted, and subsidies withdrawn**:

- “I reject mass animal production. It is not species-appropriate, brings anonymity and denies the right of existence for living beings. Agro-industry destroys soils and water bodies.” (EN6)
- “Agro-industry causes environmental destruction that lasts. Mass animal production is disrespectful of living beings and very unhealthy. This must not be subsidized.” (EN5)

Ad 10 (+3): **Organic production must continue to grow to change conventional systems, contributing to solving global problems:**

- “Step by step towards the big aim of a global organic agriculture. If something in the system changes, the system itself will change” (EN4)
- “Organic agriculture works (only) in small-scales. It is the more sustainable form of agriculture, better for soil and biodiversity. Therefore, organic needs to drive out conventional agriculture.” (EN5)
- “A growing expansion of organic practices would be the solution for global problems” (YP20)

Ad 33 (+3): **All subsidies for agriculture should be oriented much more towards protection of environment and climate:**

- “Subsidies for exports must stop. In the past, a lot has been ruined through subsidies. We have to see global interlinkages.” (EN6)
- “With climate change on the run, this is something that is essential and needs to be put into practice as fast as possible. Environmental and climate protection go hand in hand with organic agriculture.” (YP21)
- “Subsidies can be well used to drive development in a desired direction. With agricultural subsidies oriented towards environmental protection, this money would finally land where it belongs to” (EN3)

Ad 4 (+3): **Food products that have been produced using artificial fertilizers, chemical treatments or GMO should be clearly labelled:**

- “I want a clear labelling for such products as to enable consumers to take informed decisions.” (YP15)
- “I call for transparency!” (YP20)

Ad 39 (+3): **The way we produce and consume our food has a big impact on our health:**

- “Yes! In so many ways” (EN3)

Ad 31 (+2): **One of organic agriculture’s strength is improved livestock welfare:**

- “Very important. The precautionary use of antibiotics and the breeding practices cannot be tolerated.” (YP15)
- “Interlinkages! (Zusammenhänge!) (YP20)

Ad 6 (+2): **Organic agriculture can provide more than enough nutrition for the entire European population:**

- “This is definitely possible and important to realize. This comes along with higher awareness for nutrition.” (YP21)
- “It would be possible if things would run a bit differently and other things would be taken into account.” (Mi9)

Ad 14 (+2): **If ecological costs would be fully integrated into the price of the products, industrially produced food would be much more expensive:**

- “Simply yes!” (EN3)

Ad 25 (+1): **Local food production is more important than organic-based food production:**

- “When it comes to pesticides and mineral fertilizers, the extent to which they are used is important to consider. Also in organic agriculture, they are sometimes use. One has to differentiate here.” (YP16)

Ad 30 (0): **Organic farms can better tolerate periods of drought and other extreme weather fluctuations:**

- “Yes, because organic practices promote soil health. Consequently, they can hold water better and in higher amounts and in general can adapt better to changing conditions. (EN5)

Ad 20 (0): **Organic agriculture needs to be more productive:**

- “In a sense that more organic farms are needed, not that the single farm needs to produce more on the same land. Organic agriculture needs to be subsidized and organic farmers need more room for maneuver.” (Mi9)

Ad 12 (0): **Regulations for organic farmers and producers must be simplified:**

- “Bureaucratic obstacles play a significant role within the decrease of small scale farming.” (YP16)

Ad 41 (-1): **Precision farming and digital technologies are innovations that should be implemented in organic agriculture:**

- “This is a modern fairy tale. We do not need that. This is something that is once again adapted to mass production.” (YP16)

Ad 36 (-1): **The increasingly present term of “regional” in opposition to “organic” creates confusion for consumers**

- “No. Whoever stays informed, is not confused.” (YP15)

Ad 13 (-1): **Organic farming and the organic food sector are currently competing with other sustainability initiatives.**

- "I do not think so. They can rather work together. I do not perceive any competition." (EN3)

Ad 17 (-2): **More people would choose seasonal, regional and organic food products if they had the financial option:**

- "This question should not even pop up. It must be feasible to have a sustainable lifestyle. This must not be a thing of luxury." (EN4)

Ad 5 (-2): **A more sustainable lifestyle is more costly for the consumer:**

- "In the contrary, a sustainable lifestyle can be even less costly, because it tends to come along with less consumption and wastage." (EN3)

Ad 26 (-3): **Organically produced food is not more nutritious:**

- "Nonsense" (EN4)

Ad 42 (-3): **The support for organic agriculture should be provided mainly from the consumers' side.**

- "What we need is governmental regulation to provide proper framework conditions for organic agriculture to bloom. The government carries the responsibility to provide the necessary structures." (EN6)
- "The responsibility lies with politicians. Consumers have only limited (financial) opportunities" (YP16)
- "The consumers' support is also important, but more essential is the support of politics." (Mi9)
- "Consumers can help to support, but the main support must be provided by political measures." (EN3)

Ad 34 (-3): **Organic agriculture does not contribute to employment in rural areas**

- "I do not believe that. Industrial agriculture needs machines; organic agriculture calls for human hands." (YP21)
- "This is wrong. I know organic farmers who proof the contrary." (YP20)

Ad 32 (-4): **Organic production requires too much land usage for minimal yield:**

- "On the contrary – on a healthy soil more plants grow. In total, organic agriculture requires less land."(EN6)
- "This is not true. Opponents like to use this for their reasoning." (YP20)
- "Conventional agriculture ruins the soil in the long term. This is no alternative. And sometimes, e.g. permaculture shows even higher yields in comparison with conventional agriculture". (EN5)

Ad 35 (-4): **There is no scientific proof to verify that organic food products are more healthy and environmentally friendly than conventionally produced food**:

- "Nonsense." (YP21)
- "Of course there is." (YP20)
- "Ohja." (YP15)
- "Ohja" (Mi9)
- "Nonsense, this is well proven. Conventionally produced food has harmful substances in it, chemicals and antibiotics." (EN5)

Ad 3 (-5): **Food security cannot be achieved with organic agriculture:**

- "This is the wrong attitude. I do not want to believe this, and I do not. It is possible with a more caring handling with our resources." (EN4)

- “On the contrary! In the long term, organic agriculture is more likely to be able to ensure food security, because it maintains the resources it relies on. We need a stronger focus on quality instead of quantity. A global organic agriculture would also provide many social benefits.” (EN6)
- “This is only a lame excuse.” (YP21)
- “This is nonsense. Organic agriculture provides higher employment, diversity in work life of farmers, biodiversity etc. A return to closed-loops/subsistence is possible. “(YP16)
- “This is not true. Small scale farmers already feed the bigger part of the world’s population.” (EN5)

9.2.2 Comments by respondents belonging to Component 2 (“critical organics”)

Ad 29 (+5): **Agro-industry and mass animal production must be restricted, and subsidies withdrawn:**

- “In the case of the food system, pressure for change needs to be initiated by “violent” measures. A change of consciousness on the consumer side is not enough.” (EN1)
- “What is proven to be seriously bad for health and environment mustn’t be subsidized!” (Mi14)
- “Mass production and the related mass of waste should not be subsidized.” (YP18)
- “Subsidies must not be provided for mass animal production and agricultural practices that harm the environment” (YP19)

Ad 33 (+4): **All subsidies for agriculture should be oriented much more towards protection of environment and climate:**

- “We need direct political design that goes beyond the elimination of subsidies.” (EN1)
- “Money can be used to direct on a course.” (Mi12)
- “This is necessary! Big companies that harm the environment must not be subsidized.” (YP19)

Ad 39 (+4): **The way we produce and consume our food has a big impact on our health:**

- “Yes, in a physical and spiritual (esoteric, emotional) way”. (EN2)
- “The way in which something is being produced has an impact on the quality of the product.” (Mi12)

Ad 7 (+3): **The dependency on subsidies has a very negative effect on autonomy an stability of farms:**

- “On the other hand, subsidies can be helpful tools.” (EN2)

Ad 17 (+3): **More people would choose seasonal, regional and organic food products if they had the financial option:**

- “What adds to the available money are education and presence of the topic in everyday life.” (YP18)

Ad 43 (+3): **Organic products are often imported and therefore are not necessarily environmentally friendly:**

- “Organic bananas from Peru need to be transported via ship or airplane. This harms the environment.” (Mi14)

Ad 2 (+2): **The future policy needs to take into account the true cost of industrial farming:**

- “We need political management! The responsibility must not be handed over to consumers.” (EN1)

Ad 4 (+2): **Food products that have been produced using artificial fertilizers, chemical treatments or GMO should be clearly labelled:**

- “For consciousness *(Bewusstsein)* and transparency. Only who is informed can actually decide.” (Mi10)

Ad 8 (+2): **Ideological barriers between supporters and opponents of organic agriculture need to be overcome to pave the way for reaching higher sustainability:**

- “There cannot be progress if we work with ideologies”. (Mi12)

Ad 22 (+1): **Smart combinations of organic and conventional methods could contribute toward increases of sustainable farming in global agriculture:**

- “Regional/local circumstances need to be taken into account!” (YP18)
- “We need a good average here, balance. Both extremes (huge monocultures vs. subsistence) are not ideal. A mutual approach, finding a golden middle in between can lead to sustainability.” (Mi10)

Ad 37 (+1): **Consumers need to have a greater understanding of the work involved in food production:**

- “Reconnaissance (*Aufklärung)* and education are essential for care to evolve.” (Mi14)

Ad 5 (0): **A more sustainable lifestyle is more costly for the consumer:**

- “Not necessarily! Only from today’s point of view. If external costs start to be included into the price, this question will not be asked anymore.”
- “This is nonsense. The best example is meat consumption. Less meat means less costs. In the contrary – in middle- and long-term a sustainable lifestyle is less costly.” (Mi10)

Ad 10 (0): **Organic must continue to grow to change conventional systems, contributing to solving global problems:**

- “I am very much in favor of this.” (EN2)

Ad 34 (-1): **Organic agriculture does not contribute to employment in rural areas:**

- “I am not very convinced of this statement; it is a bit fuzzy to me. However, I have the feeling that somehow, it could probably lead to higher employment.” (EN2)

Ad 3 (-2): **Food security cannot be achieved with organic agriculture:**

- “It would be possible if the conditions would be changed” (YP18)
- “Food security can rather be achieved by organic agriculture than by conventional agriculture. Keywords ecosystem services, resistance etc.” (Mi10)

Ad 35 (-2): **There is no scientific proof to verify that organic food products are more healthy and environmentally friendly than conventionally produced food:**

- “Yes, there is.” (YP19)

Ad 44 (-2): **Organic farms can learn from conventional farms:**

- “I do not see that. They should have opposite approaches.” (EN1)
- “Hä?! What should they learn from them?!” (Mi14)

Ad 20 (-3): **Organic agriculture needs to be more productive:**

- “The obsession with ever increasing productivity is one of the main reasons that so many things go wrong.” (YP19)

Ad 26 (-3): **Organically produced food is not more nutritious:**

- “Nonsense. The salad on my plate tells me, this is nonsense. Industrial food is as nutritious as dust on the street.” (EN1)

Ad 36 (-3): **The increasingly present term of “regional” in opposition to “organic” creates confusion for consumers:**

- “Consumers are not that stupid” (Mi12)

- “No, with a bit of thinking, it is not confusing. Whoever cares, will certainly accomplish. Regarding the features organic and local, the overlap is the best case.” (EN2)

Ad 38 (-3): **At presence, the gap between “conventional” and “organic” production has become smaller and the differences get blurred:**

- “This is simply not true.“ (Mi12)
- “Hä?! There are clear differences between organic and conventional agriculture. And: Organic and organic is not always the same.”

Ad 15 (-4): **Higher prices for food could perhaps contribute to a higher appreciation for their value and resulting in less food waste:**

- “This is not a solution. Price politics are very complex and does not influence the amount of food waste. The price includes also costs for marketing, so one rather buys a brand than a product.” (EN2)
- “This is nonsense. People do not function in that way.” (YP18)
- “Nonsense. Higher food prices only bring problems for people who do not have lots of money.” (YP19)

Ad 42 (-5): **The support for organic agriculture should be provided mainly from the consumers’ side:**

- “The support should rather be provided by policies.” (Mi12)
- “It should not be a matter of social conditions whether organic is affordable or not. The responsibility has to lie with politics.” (Mi14)

Other comments

“I do believe that there is organic inside when the package claims it is organic. But I am not convinced that the respective product is automatically sustainable only because it is labelled organic.” (EN1)

9.2.3 Comments by respondents belonging to Component 3 (“sceptical followers”)

Ad 2 (+5): **The future policy needs to take into account the true cost of industrial farming**:

- “Generally, it is necessary to take a long-term-viewpoint and to evaluate the risk that comes with conventional practices (keyword soil)” (Mi11)

Ad 5 (+4): **A more sustainable lifestyle is more costly for the consumer**:

- “Organic food costs more than conventional food” (Mi8)

Ad 10 (+3): **Organic production must continue to grow to change conventional systems, contributing to solving global problems:**

- “Organic is still too small” (Mi11)
- “Organic agriculture needs to become more productive on one hand and on the other should cover more land in total” (Mi13)

Ad 17 (+3): **More people would choose seasonal, regional and organic food products if they had the financial option**

- “There is a clear link between economic/financial welfare and the purchase of organic food.” (Mi8)

Ad 18 (+3): **The organic movement should be more inclusive of other issues, such as social justice and food sovereignty:**

- “We must see the bigger picture.” (Mi8)

Ad 33 (+3): **All subsidies for agriculture should be much more oriented towards protection of environment and climate:**

- “Subsidies have the power to direct a development in a certain direction. Environmental and climate protection are very important for generally sustainability.” (Mi11)

Ad 8 (+2): **Ideological barriers between supporters and opponents of organic agriculture need to be overcome to pave the way for reaching higher sustainability):**

- “This is one big problem. We need to decouple the aim of an overall sustainable food system and political orientation. Sustainability should be the universal target for everybody, no matter if left or right.” (Mi13)

Ad 9 (0): **, Consumers have more trust in local production, as opposed to organic products, which are globally traded and whose origins and production is not always clear:**

- “The notion rather is like – organic.. ok well, should be fine” (Mi13)

Ad 20 (+2): **Organic agriculture needs to be more productive:**

- “The world’s population is increasing and needs to be fed. Since organic agriculture requires more space, there will otherwise be a problem of sufficient production” (Mi13)

Ad 26 (-2): **Organically produced food are not more nutritious:**

- “Of course, they are.” (Mi11)

Ad 11 (-3): **The controls on organic farms should be strengthened, eliminating any derogations:**

- “More control means more bureaucracy and therefore higher costs. I am against this.” (Mi11)

Ad 34 (-3): **Organic agriculture does not contribute to employment in rural areas:**

- “While conventional agriculture in combination with urbanization leads to people leaving rural areas, organic agriculture requires more human power.”

Ad 37 (-3): **Consumers need to have a greater understanding of the work involved in food production:**

- “It is ok that not everybody is interested in how the food we buy is being produced.”

Ad 30 (-4): **Organic farms can better tolerate periods of drought and other extreme weather fluctuation**

- “I cannot imagine they do.. What does tolerate even mean? I’d rather think that organic agriculture depends even more on nature and its moods than conventional agriculture does.” (Mi13)

Ad 42 (-5): **The support for organic agriculture should be provided mainly from the consumers’ side**

- “This responsibility cannot be put on the consumers’ shoulders, because in this case only people who can afford the premium price of organic products can choose freely and have an impact on the system” (Mi8)
- “Consumers do not have that power. Politics and law need to take action.” (Mi13)