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Leah Richardson & Fredrik Fernqvist

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# Transforming the Food System through Sustainable Gastronomy - How Chefs Engage with Food Democracy

Leah Richardson and Fredrik Fernqvist 

Department of People and Society, Swedish University of Agricultural Sciences, Lomma, Sweden

## ABSTRACT

The global food system contributes significantly to climate change and environmental degradation. New dynamics are needed to sustainably transform the system. Using the theoretical frames of food democracy and a food systems approach, interviews were conducted with ten chefs practicing sustainable gastronomy with the aim of determining their contribution to the system transition and their practices in this process. Results show that the chefs use the principles of food democracy to engage and motivate people, find new forms of collaboration and ways to promote sustainable food practices, and improve food values and sustainable food behaviors.

## KEYWORDS

Sustainable gastronomy; chef; food democracy; food system; food citizenship; sustainability transformation

## Introduction

Our food system is a major contributor to climate change and environmental degradation,<sup>1,2</sup> and a dominant force behind climate change, biodiversity loss and degradation of land and freshwater.<sup>3,4</sup> All actors in the food system must collectively work toward change,<sup>5</sup> but focus needs to be expanded to other actors than merely producers and consumers.<sup>4</sup> This includes approaches considering the dynamics and engagement of citizens, consumers, and producers,<sup>5–9</sup> and their ability to exercise agency to shape more sustainable food systems.<sup>10</sup> An important but often neglected part of the food system is the restaurant and food-catering sector, which is a key economic sector.<sup>11</sup> In the USA in 2018 almost half of all food spending was on food away from home.<sup>12</sup> In the UK, one-fifth to one-quarter of individuals eat weekly meals prepared out-of-home,<sup>13</sup> and in Brazil approximately one third are eating out of the house every week.<sup>14</sup> However, research on sustainability of food in restaurants,<sup>15</sup> or on how chefs engage in the food system transformation has had little research to date.<sup>16</sup>

Gastronomy refers to a set of rules that define the art of good cooking with rules differing across social systems and countries.<sup>15</sup> Cultural and emotional dimensions of food move beyond the basics of nutrition. Creativity and the ability to create new dishes with carefully selected ingredients are key

**CONTACT** Leah Richardson  [richardsonleah@yahoo.com](mailto:richardsonleah@yahoo.com)  Department of People and Society, Swedish University of Agricultural Sciences, 190, SE-234 22 Lomma, Sweden

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components of gastronomy.<sup>15</sup> Sustainable gastronomy takes into account how it can be incorporated in a manner that is beneficial for the planet and society.<sup>17</sup> Chefs are agents to drive demand for new diets through messaging and new menus inspired by cultural food influences, flavors, and biodiversity.<sup>18</sup> They can model and demonstrate sustainable gastronomy that tastes good, thereby changing both products and consumers' behavior.<sup>15,17</sup> Their participation in the food system transformation can be seen as taking on the principles of food democracy – implying active participation in making choices about one's engagement with the food system – to collectively make it more sustainable.<sup>19</sup>

This study aims to investigate how chefs practicing sustainable gastronomy are contributing to transforming the food system. Two research questions were examined: 1) How are chefs practicing sustainable gastronomy changing our food system? and 2) How are chefs practicing sustainable gastronomy engaging and motivating people to participate and engage with the food system? This study uses a qualitative approach and applies theoretical concepts of food systems and food democracy to answer these questions.

### ***A Food Systems Approach***

Systems approaches help in addressing complex problems with interactions between interdependent components.<sup>20</sup> Ericksen's<sup>21</sup> food system approach is a commonly used model illustrating how the food system is made up of different actors with activities ranging from production to consumption and how these generate a variety of outcomes. In this model external socioeconomic and environmental drivers influence the food system, while the food system in turn may influence these drivers. A systems thinking approach highlights the interlinked nature of production and consumption, as well as the dependency and impact of food on our environmental and societal change.<sup>22</sup> The system approach offers significant advantages for the implementation of mitigating measures by recognizing the connections between consumer demand, dietary choices and production through integrating a wider set of actors and actions.<sup>23</sup> However, the food system approach has mostly been used for assessing food security and environmental impacts<sup>24</sup> and gastronomy or food consumption outside of the house is rarely identified as an activity. Similarly, the role of gastronomy and food service is generally omitted from major policy reports, such as the, such as the European Commission's<sup>25</sup> expert report on the "Transition towards a sustainable food system," or the United Nations' "Pathways to sustainable food systems."<sup>26</sup> Nevertheless, the role of chefs as social innovators taking a transformative role in food system change, for example through mobilizing their role in healthy food, or emphasizing the provision of ecosystem services, has been pointed out.<sup>27,28</sup> also underline chefs' key role in influencing food system actors along the chain from production to consumption.

## Food Democracy and Food Citizenship

Achieving sustainability in the food system involves values and collective understanding, requiring active participation and engagement of citizens to shape the solutions to common problems,<sup>29,30</sup> but people also need to change how they view and engage with the food system.<sup>5</sup> The concept of food democracy was introduced in the 1990's in response to the increasing corporate control of, and lack of consumer participation in, the food system.<sup>31</sup> It urged a need to democratize the food system, encouraging people (citizens) to shift the balance of power, allowing people to participate and engage with the food system. In brief, food democracy reflects public values, morals and ethics that should be reflected in the food system.<sup>32</sup> Food democracy rests on the belief that every citizen has a contribution to make to the solution of our common problems<sup>30</sup> and can be described with five principles (Table 1).

Renting et al.<sup>6</sup> put forward the idea of “food citizens” as those who engage in food related behaviors that support the development of a democratic, socially, economically and environmentally sustainable food system. Consequently, food democracy and food citizenship can be an effective means for advancing sustainability in food systems.<sup>32–34</sup> The individuals' agency in acting collectively is central to a bottom-up or people-centered change in the food system<sup>35</sup> and active citizenship is required so that people are inspired, organized and supportive.<sup>36</sup> The concept of food democracy has been widely discussed and applied in particular with reference to alternative food networks.<sup>30,32,34</sup> Although the concept has increasingly been applied in other areas such as health food movements, food policy councils and government food education policy,<sup>36,37</sup> it is recognized that we need more knowledge on how food democracy is unfolding at different levels and contexts.<sup>37,38</sup>

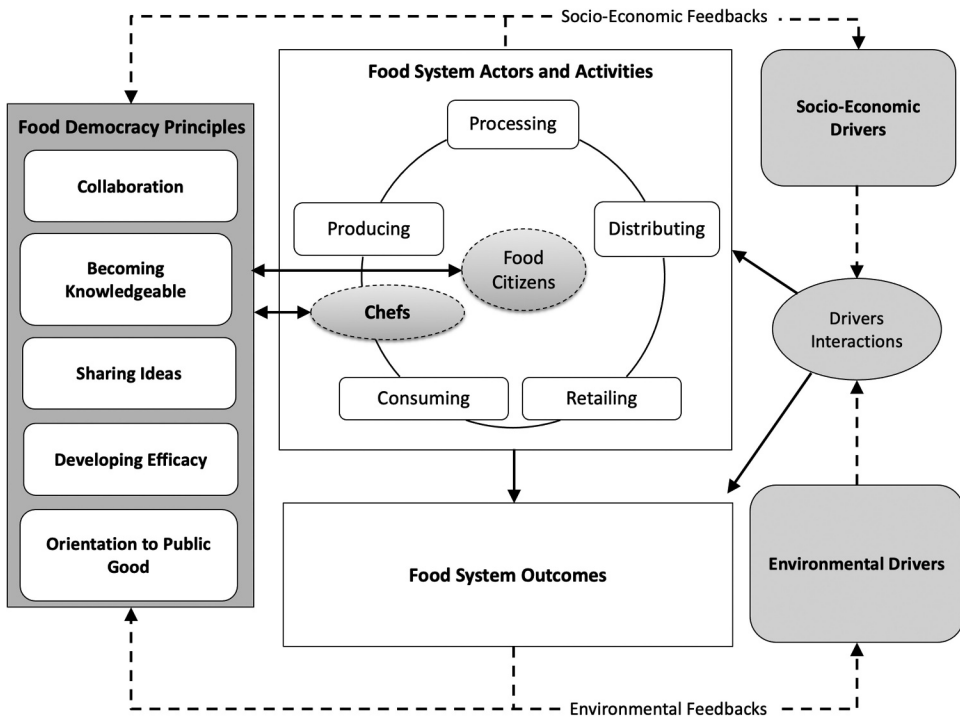
**Table 1.** The five principles of food democracy and their meaning, adopted from Hassanein.<sup>19</sup>

Food democracy principle	Meaning
1. Collaborating toward food system sustainability	Proposes that food democracy cannot be achieved solely by individual decisions but involves collective action and working together in coalitions toward sustainability
2. Becoming knowledgeable about food and the food system	Builds on democratic theory that recognized the importance of individuals having the knowledge necessary to participate effectively
3. Sharing ideas about the food system with others	Is based on the notion that people make better decisions for themselves and others if they have shared ideas gained through discussion
4. Developing efficacy with respect to food and the food system	Building capacity to determine and produce desired results.
5. Acquiring an orientation toward the community good	Individuals are willing to go beyond their self-interest to promote the well-being of the community.

### Conceptualizing Sustainable Gastronomy

Tentatively, chefs' engagement in taking on sustainability practices to transform the food system through sustainable gastronomy is an action of engaging in food democracy. The concept of food democracy is important for this study because we examine how chefs engaging in sustainable gastronomy are food citizens using food democracy to create more food citizens. The interrelations between the food system and the principles of food democracy may conceptually be depicted (Fig. 1). The model places chefs practicing sustainable gastronomy and applying principles of food democracy as essential actors, or agents, in the food system. They have a critical role to play in both public and private consumption and influence other actors from production to consumption. Drivers of the food system interact with food system activities and outcomes, and also create a feedback loop that contributes to the evolution of how food democracy principles are applied on the food system's activities and its outcomes.

The conceptualization proposes that chefs need to be recognized as change makers in the food system as dedicated individuals that initiate and facilitate progress toward large-scale transformation in complex systems.<sup>39</sup> The Chef's



**Figure 1.** Conceptualizing the role of food democracy and chefs practicing sustainable gastronomy contribution to food system transformation. Own elaboration based on the frameworks of Ericksen<sup>21</sup> and Hassanein.<sup>19</sup>

Manifesto, a global advocacy platform for more than 900 chefs working with a sustainability framework tied to United Nations Sustainable Development Goals,<sup>40</sup> is an example of chefs' engagement in the food system. Active chefs promote a variation of sustainable practices, defined in an eight-point Action Plan, including areas such as focus on plant-based ingredients, protection of biodiversity, improved animal welfare and the celebration of local and seasonal foods (ibid.).

## Materials and Methods

A qualitative research method was applied to analyze and interpret people's words through interviews in order to discover meaningful descriptive patterns and contribute to theory generation and refinement.<sup>41</sup>

### *Sampling and Procedure*

To identify subjects, purposive sampling was used with two levels of sampling in order to ensure variety in the resulting sample.<sup>41</sup> The researchers collaborated with the Chef's Manifesto network. First, countries were selected on the criteria that: 1) the Chef's Manifesto has a presence; 2) sustainable gastronomy movements are emerging; 3) the focus on sustainable gastronomy varies, and; 4) there should be diverse food cultures and contexts. The final selected countries were Ireland, India and Columbia. Secondly, the unit of analysis (chefs) was strategically selected from the three countries as relevant to the research questions to generate a sample exemplifying the population under consideration.<sup>41</sup> The Chef's Manifesto assisted in identifying three to four chefs from each country. The criteria were that the chefs were: 1) engaging in sustainable gastronomy activities; 2) having a connection with the Chef's Manifesto and; 3) interested enough with the sustainability agenda to take time to respond to a request interview for research. Ethical codes for research require that participants agree to research before it begins. Prospective research participants were first contacted directly by the Chef's Manifesto to protect their privacy and they were given information about the nature of the research in order to make informed decisions about whether they wished to participate in the study.<sup>41</sup> Verbal informed consent was obtained to record and to use excerpts of the interview conversations and no reason for ethical vetting was found.

Interviews were carried out in March 2021 with the ten chefs (Table 2). A semi-structured interview guide with open-ended questions was used and one researcher conducted all the interviews. Questions were divided into nine thematic sections (see Appendix), following the components of the conceptual framework (Fig. 1). This was made in order to explore and apply the theoretical conceptualization and give the participants room to

**Table 2.** Overview of Chefs Interviewed.

Name	Country	Role and Restaurant Type
Natalia Restrepo	Columbia	Chef & Educator, culinary medicine
Santiago Rivera	Columbia	Sustainability Director, fast food burger chain
Daniel Kaplan	Columbia	Executive Chef, restaurant group
Megha Kohli	India	Head Chef, restaurant
Vanshika Bhatia	India	Head Chef, hotel restaurant
Anahita Dhondy	India	Chef manager, café chain
Radhika Khandelwal	India	Chef owner, two sustainable restaurants
Janice Casey	Ireland	Head chef, boutique country hotel
JB Dubois	Ireland	Head chef, nonprofit social enterprise
Conor Spacey	Ireland	Culinary director, cafe chain

expand on these ideas and to introduce others to allow for inductive thematic analysis. The interviews were conducted digitally (using Zoom) with the selected chefs (Table 2), then recorded and transcribed with the assistance of the transcription program Otter.ai. The transcripts were shared with the interviewees to promote transparency and allow for corrections or clarifications. All interviewees have given their consent to have their names presented, and were given the chance to participate anonymously.

### Data Analysis

A thematic analysis of the qualitative content was made following a process of coding where data was broken down, examined and categorized into themes.<sup>42</sup> The nine main themes were determined by the conceptual framework, whereby theory guided the research in order to examine the subject and answer the research questions.<sup>43</sup> Codes and sub-themes (Appendix) evolved in the analytical process and were not built on a predefined coding scheme.<sup>44</sup> The sub-themes were then categorized to the corresponding main themes. The framework method to thematic analysis was used, giving a matrix-based model organized into the nine main themes for ordering, analyzing and synthesizing the data.<sup>45</sup> The Appendix provides a detailed overview of the derived codes, their aggregation into sub-themes, and their final categorization into the main themes in line with the conceptual framework. A selection of exemplary quotes illustrates the interpretation and coding.

### Results

In the following, results are presented according to the main themes of the conceptual framework (Fig. 1) encompassing food systems and food democracy.

## **Sustainable Gastronomy and the Food System**

The four main components of the food system approach were: 1) drivers; 2) actors; 3) activities, and; 4) outcomes.<sup>21</sup> These were assessed to answer the question of how chefs are practicing sustainable gastronomy for food system change.

### **Drivers**

The key environmental drivers mentioned were loss of biodiversity and non-sustainable production methods such as farming practices that destroy soil health, the narrow biodiversity of crops being produced, and animal husbandry practices that damage the environment. There were also concerns expressed about food waste in kitchens and households as well as during transportation and distribution. As Chef Radhika noted:

I would say food waste would be a really big concern in the food system. [...] In India, especially, it is because of the infrastructure rather than what actually happens once the consumer gets it. There's a lot which gets lost during the transport stage.

A range of key socio-economic drivers was identified comprising of consumption trends, food policies, business practices and culinary education. A central point of concern was people's lack of awareness and knowledge coupled with the globalization of the food system. The chefs expressed that knowledge about how food is produced and transported and the impacts those have on our environment are not well known either by the consuming public or by chefs. Chef Anahita stated that: *"I don't think we are taught the insides of how the food system is and how the food system has been impacted over the years because of consumption and production."* Other drivers to the chefs' actions were the value of national food heritage, ingredients and cooking techniques and the overall globalization of food sources and dependency on food imports.

### **Actors**

Customers, other chefs and farmers were considered the main food system actors from the chefs' perspective. The majority responded that customers were the most important actor they influenced, whereas half the respondents felt that they had an influence on other chefs. As part of the chef community, it was felt that there is an opportunity for chefs to change trends of what is cooked and available, as well as influencing their peers. Chef Conor brings this to life by saying:



I train a lot of other chefs on what I do. And it's a matter of you using the information that we know, and sharing it widely. But without preaching . . . or it's not like we're preaching to people - you must do this, or the world's gonna end. It's not that kind of way. It's kind of here's the information. This is what we know is going on the planet today with our food system, here are better alternatives, you know.

Some of the respondents indicated that they influenced producers and farmers with discussion about how chefs are able to create demand for sustainable products and processes thereby influencing the supply of those products. Chefs were described as sitting at the nexus between customer and farmer, and that influence on one can result in an influence on the other. Chef Daniel illustrates this with the example of how environmentally sustainable practices also may result in economic sustainability for farmers:

We also have to influence the producers, they have to understand that they have to go the right way, in order for people to keep buying from them. But also, it's important for them to know that they're going to be better off economically if they do this [more sustainable].

### **Activities**

Three primary food system activities involved with practicing sustainable gastronomy were identified. Firstly, demonstrating deliciousness allowed wider access to customers' attention and opened doors for conversations or ingredients that might otherwise not have happened. Chef Radhika noted:

So instead of like shoving sustainability down people's throat, because I've noticed that the consumer does not like it, what we do is we have added elements to our menu, which you cannot like go past. So like say if it's a burger, it will have a watermelon rind relish inside.

Starting the conversation through a shared experience of delicious and sustainable food was seen as a real added value and a food experience can become an opportunity for engaging with sustainability. The second primary activity involved educating, and engaging their audiences: making people think more about their food choices and the impact those choices make. This can be through building knowledge and awareness of the impacts of food production and consumption, around the use of unfamiliar ingredients or through cooking techniques such as zero waste cooking. The third primary activity was to work with more biodiverse ingredients in their kitchens, either through addition or substitution of ingredients. The interviewees also discussed how this tie in with the first two actions of demonstrating and educating.

**Table 3.** Outcomes of sustainable gastronomy on the food system.

Outcomes	Changes within the Food System
Values	<ul style="list-style-type: none"> <li>● Shifted food culture back to its local/national roots and given it new value</li> <li>● More consciousness about the importance of sustainable food</li> <li>● Perception of the chef has changed from someone in the kitchen to someone knowledgeable about health and sustainability</li> </ul>
Practice	<ul style="list-style-type: none"> <li>● Respect for women; created an awareness of gender equality</li> <li>● Increased consumption, demand and production of local/biodiverse/sustainable foods and preserving indigenous produce</li> <li>● Change in other chefs and kitchen staff attitudes and practices including sourcing sustainably, reducing waste and plastic use and using a solutions-oriented approach</li> <li>● Culinary schools are incorporating sustainability into their programs</li> <li>● Growth of small-scale producers engaging in sustainable practices</li> <li>● Increased employment for the local population</li> </ul>
Behavior	<ul style="list-style-type: none"> <li>● Reduction in household food waste through changed behaviors</li> <li>● Stimulating curiosity and creativity in customers and staff</li> <li>● People are more empowered and feel that can make a difference</li> </ul>

### **Outcomes of Sustainable Gastronomy on the Food System**

The analysis revealed that the practice of sustainable gastronomy can be categorized into three broader food system outcomes: changes in values, practice and behaviors (Table 3). The majority of interviewees thought that increasing consumption and demand for local, biodiverse and sustainable products and a change in other chefs and kitchen staff attitudes and practices were the biggest changes in practice.

Regarding values, there was a perceived shift in food culture back to its local or national roots, implying a change in food values with increased focus on sustainable culinary practices and local foods. As Chef Vanshika excitedly noted: *“People are going back to their roots and going back to the culture -not changing the culture – but going back to their own culture, not adopting another culture.”* This links directly to some of the identified food system drivers, e.g. globalization of the food system and neglect of local foods and food heritage. Changing behaviors, such as reduction in household food waste, was identified as the third main change outcome. This process was well described by Chef Conor, recognizing that people may feel more empowered to make a difference:

I think people are aware, but I think they're more empowered, they feel that yes, actually, I can make a difference. And if I stopped buying strawberries in January, or farmed salmon, you know, that's polluted our fisheries and so on. I think once they have the information, they feel empowered, and they can make a change.

Having been exposed to sustainable gastronomy people – often customers or other chefs – change their consumption behaviors and/or practices to more sustainable ones.

## ***Sustainable Gastronomy and Food Democracy***

The analysis recognized how food democracy is contextualized within the realm of sustainable gastronomy. The results show the details of how food democracy is being practiced and further developed by chefs engaging in sustainable gastronomy. The results are grouped into themes following the five principles of food democracy<sup>19</sup>: 1) collaboration; 2) becoming knowledgeable; 3) sharing ideas; 4) efficacy, and; 5) orientation toward public good.

### **Collaboration**

All interviewees discussed their involvement in collective action and collaboration toward food system sustainability, primarily with other chefs and farmers. They all actively collaborated with other chefs or restaurants, which was seen as a big shift in behavior from previously when chefs were traditionally protecting culinary methods and suppliers from one another. There is a sense of working toward common goals that benefit everyone with the intention of sustainable gastronomy becoming part of the new normal. As Chef Anahita said:

And most importantly, you just feel really good about the work that other people are doing, and you are doing, and you're all in the same group. So you're just working harder towards what do you want to achieve.

Collaborating with farmers involved seeking and searching for supply of sustainably produced products. In particular working more with local food networks was understood to develop a symbiotic relationship, where the menus that chefs produce are a reflection of what the farmer has available, and that vice versa new markets are developed by the demands created by the chefs for sustainable products that might not traditionally be available or valued.

### ***Becoming Knowledgeable***

The importance of individuals having the knowledge necessary, through educating and stimulating curiosity, to participate effectively in the food system, was highlighted. The majority also noted that educating both customers and oneself was the most important factor to be able to make active decisions and change behaviors about how to engage with the food system. This required personal research and learning as well as externally facing actions such as putting info on menus, holding classes and trainings, and engaging with customers. Chef Anahita described the important role knowledge plays in chefs creating change:

So I just feel that a chef's role is very important. Other than cooking, and other than creating dishes and creating menus, we have reached a very pivotal role where we have to do more than just that. We have to, most importantly, learn ourselves. We have to research. We have to share, share as much knowledge as we can with the public, through whatever it might be.

Building and stimulating curiosity in the food system, both amongst chefs and customers, was identified as an important component of building knowledge. This was described actions such sharing indigenous and local practices of culinary sustainability and moving beyond a black or white picture to understand the nuances of sustainability.

### ***Sharing Ideas***

The chefs mean that people make better decisions for themselves and others if they have shared ideas gained through discussion. The majority meant that the best way to share ideas is to first lead with creating a positive eating experience that engages with individuals from the primary level of participating in a gastronomical experience. This opens the door to a discussion about the sustainable nature of foods, making people receptive to discussing the concepts and practicing it themselves. Chef Megha illustrates this:

I think one of the major impacts that I've had is that people feel that sustainable food is equal to not delicious. So, I think that breaking that myth has been a great step that I've taken . . . So I think the idea that people realize that, you know, it can be good, can be sustainable, it can be healthy, and yet it can be delicious as well was a great step, because then the dialogue starts and then people want to recreate dishes at home, because they realize that this can be delicious, too.

Open and balanced discussion was seen as critical for conveying and adopting new ideas and practices, but also as a method to engage with people who might think differently than you do. The respondents noted the particular importance of entering into discussions with farmers and producers partially because they need to be made aware of and meet the demand for sustainable products, which in turn leads to economic sustainability.

### ***Efficacy to Achieve Outcomes***

Communication, positivity and a focus on values were found as key components for building capacity to produce desired results with respect to food and the food system. Developing efficacy through communication involved methods such as amplifying messages, continuous messaging and engaging people in dialogue so that perspectives are changed and they are empowered to make a difference. Chef Vanshika meant that: *"We've been talking about eat local, eat local, we keep repeating ourselves, and we will keep repeating*

*ourselves until it becomes a proper thing that becomes a normal, like, it becomes the norm.*” Developing efficacy through positivity involved positive solution-based approaches to environmental and climate issues. Interviewees indicated that it was effective to tackle larger desired changes one small step at a time. Finally developing efficacy involved discussing values and sharing with younger chefs and others in the kitchen as Chef Megha shared:

I have this community of student chefs, who I have a session with them once in two weeks on zoom, where I talked to them about how they need to change their thinking as chefs, and how they need to start thinking for the betterment of the environment and how they can have a massive, massive impact.

### **Orientation Toward Public Good**

All chefs responded that working with sustainable gastronomy is part of an orientation toward community good and expressed a drive to go beyond their self-interest to promote the wellbeing of the community. The results can be categorized into respect, welfare and food security with an equal emphasis on the three categories. Respondents expressed that engaging with elements of the food system with more respect makes it better for everyone, as expressed by Chef Daniel: *“So little by little understanding that treating the earth well treating the animals well treating your plants well treating everything well – it’s gonna it’s going to make things better for everybody.”* There was also a mention of more respect for women, the earth and the farmer. Finally, improving food insecurity through eradicating hunger and inequalities was identified as part of the concern for greater public good, as Chef Radhika explained: *“Like, there is always like this driving force of doing the right thing being a part of a better food future, if you may, and doing your bit to kind of eradicate hunger.”*

### **Discussion**

The study has established that chefs practicing sustainable gastronomy are active food citizens engaging in food democracy with an important role to play in food system change. Surprisingly, the chefs followed the concept of food democracy, even though they had previously never heard about the concept. The observed and described activities and outcomes of sustainable gastronomy deepen Renting’s et al. <sup>6</sup> description of food citizenship as a practice of food related behaviors that support rather than threaten the development of a sustainable food system. It is also apparent that chefs influence consumers and producers to become active food citizens to collectively participate in food democracy, confirming Hassanein’s <sup>19</sup> position that food democracy involves

collective action. This also underpins Booth's and Conveney's<sup>36</sup> proposal that chefs stimulate food democracy to flourish by exerting power, remodeling and improving the existing food system.

The study validated that food democracy is applicable in the context of sustainable gastronomy and that food democracy can be removed from the sole realm of alternative food networks and located more broadly in other contexts as is in line with Petetin<sup>38</sup> and with Bornemann's and Weiland's<sup>37</sup> view that food democracy has matured and is being applied in multitude of venues. Our findings imply that food democracy is applicable in the context of sustainable gastronomy allowing them to have their voices heard through practices of creating new shared food values and empowering people to engage with the food system. Further, the results have revealed that chefs, through their activities, are powerful actors in the food system transformation as they are able to influence and establish food trends and influence their peers. This was clearly expressed in the following representative statement from Chef JB:

Us as chefs [are] being more influential to the rest of the chefs around. I believe the chefs are in the middle between the farm and the plate as such. But they as well, set the trend, big time. You know, I mean, avocados didn't get popular in Europe because someone decided. Chefs put avocado on the fashion bar like on plates first. And then people started to buy avocados. So, with the chef's, we set the trend and put ideas in people's minds. How could [it] be done differently?

We have demonstrated that chefs are influencing others to have more sustainable food values, behaviors and practices thereby creating a more sustainable food system, confirming, Batat's<sup>15</sup> proposition that chefs can be influencers and leaders in sustainable practices that are both responsible and profitable, located at a nexus using their purchasing power and gastronomy to exert influence on producers and consumers alike.<sup>18</sup> But this finding also meets Schösler's and de Boer's<sup>17</sup> call for novel ways to facilitate dietary patterns in a more sustainable and ethical way, and Lohest's et al.<sup>34</sup> proposal that food democracy consists of a set of processes that give more power to the actors involved in the food chain. The study elaborates how chefs are using the principles of food democracy to influence others through the two-pronged approach of actively educating oneself as a chef and sharing this education with customers in order to stimulate their curiosity and build their knowledge and active engagement in the food system. Developing and sharing knowledge and ideas was found a distinctive feature of sustainable gastronomy. It appears equal to the important roles of sensory and experiential qualities in the gastronomic setting, i.e., that taste matters when it comes to making people engage with sustainable foods.<sup>46</sup>

Chefs have a key role to play in creating sustainable food trends and food values that will influence both consumption and production. Chefs practicing sustainable gastronomy and engaging with food democracy are changing the

food system and making it more sustainable, exemplifying that human behavior is a critical component of mitigating the effects of climate change.<sup>29</sup> Niles et al.<sup>2(p14)</sup> stated that “*a transformative change requires a food systems approach,*” and doubtlessly the findings from our study strengthen the argument chefs and sustainable gastronomy should be considered when applying a food systems approach.

The presented findings have been applied to consolidate and adapt the two frameworks of ‘Food Democracy’<sup>19</sup> and the ‘Food Systems Approach.’<sup>21</sup> The application of them (Fig. 1) illustrates that chefs have a key role in the food system transformation and places chefs as important food system actors not to be neglected.

The study has revealed implications for practice and policy. Firstly, investments need to be scaled up to equip more chefs with the knowledge and skills necessary to effectively engage in food democracy to create a sustainable food system; to develop chefs’ knowledge base on how food, the environment and wide issues of sustainability are linked, including such aspects as methods to reduce and use food waste, mastery of cooking techniques for biodiverse products in order to render unusual products delicious, and mastering plant-based cooking. Secondly, culinary schools need to modernize their curriculum with reference to the above and there should be a growth of independent initiatives, such as the Chef’s Manifesto, that equip chefs with skills and tools to effect change. Furthermore, chefs need to be equipped with skills to effectively communicate and share ideas using a variety of methods. Within initiatives already working with chefs practicing sustainable gastronomy, such as the Chef’s Manifesto, the findings of this study and the conceptual model could be used to guide and measure action and impact.

The purposive selection of interviewees from the Chef’s Manifesto network means that the study participants might already be particularly aware and engaged in influencing change by practicing sustainable gastronomy, and they might not be representative of the whole restaurant and catering sector. Further extension of this research could constructively include chefs outside of established advocacy networks. To conclude, his study has demonstrated how food democracy has matured from its origins and is being applied in the realm of sustainable gastronomy. It has responded to previous requests for more analysis of other contexts of where and how food democracy is unfolding at different levels and different contexts<sup>37,38</sup> and shows that chefs practicing sustainable gastronomy have an important role in transforming the food system into a more sustainable one.

## Disclosure Statement

No potential conflict of interest was reported by the author(s).



## ORCID

Fredrik Fernqvist  <http://orcid.org/0000-0002-6534-3587>

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