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# Co-creative research for transitioning toward a fair and sustainable agri-food system in Brussels, Belgium

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After decades of urbanization and agricultural industrialization, the relationships between cities and their agri-food systems have been profoundly transformed, especially in developed countries. To make agri-food systems more sustainable the pressing need to rethink food-related practices in cities has received momentum in the past 20 years across many European cities. Transdisciplinary and participatory research can generate knowledge and promising solutions to facilitate the transition of urban agri-food systems. This article highlights the contributions of six research projects driven by the notion of “co-creation” research for urban agri-food system transition, using Brussels as the research context (program “Co-Create”). The article outlines the main research foci and characteristics of the six “Co-Create” projects funded by this call, how they are embedded in the broader dynamics and initiatives of Brussels, and the theoretical foundations of the notion of “co-creation” research that sits at the intersection of transdisciplinary and participatory action research. Subsequently the paper illustrates how the six Co-Create project brought together different actors in Brussels including researchers, citizens, associations, and government agencies, that were united with a shared awareness of the need for change of the city’s agri-food system. The six research consortia targeted different issues across three aspects of the agri-food system: agricultural production in urban areas, food distribution and marketing, and accessibility and democratization of sustainable food. We critically reflect on some common insights generated by the six projects, and particularly (a) a series of recommendations that were drafted for public authorities and called for the acceleration and strengthening of efforts for urgent changes in the agri-food system of Brussels, and (b) findings that address the epistemological and methodological strengths and limitations of conducting co-creative research processes to facilitate agri-food system transition. We also discuss how the Co-Create projects might have created a historical momentum that has encouraged the placing of the transition of agri-food systems on the political agenda of Brussels, and by identifying future challenges for agri-food system transitions in Belgium.

## KEYWORDS

participatory action research, co-creation, transition, agri-food system, transdisciplinarity

## 1. Introduction

Urban regions are now home to more than half of the world's population, and pose significant economic, social, and environmental challenges to the sustainability of the global agri-food system (Brand et al., 2017; Partzsch et al., 2022). Shaped by decades of agricultural industrialization, concentrated supply chains and increasing urbanization, the links between cities and their hinterlands have been profoundly transformed (Hoggart, 2016). The current relationship between cities and agri-food systems is characterized by their increasing geographic distance, economic distance (e.g., multiplication of intermediaries), cognitive distance (e.g., lack of knowledge about food production conditions and the agricultural sector) and political distance (e.g., loss of citizen control over agri-food systems). In addition, many city dwellers are food insecure, in that they face difficulties in gaining physical, economic and/or cognitive access to healthy food (Paturel et al., 2015). This results in the greater vulnerability of current urban agri-food systems, both ecologically (IPES-FOOD, 2021) and socioeconomically.

Faced with these challenges, it is essential to ensure the sustainable future of cities and societies by transforming the functioning of local agri-food systems in order to make them ecologically sustainable, socioeconomically equitable, and less vulnerable (and therefore more resilient) (Servigne, 2013; Sage, 2014; Tornaghi, 2016). Over the past 20 years, food-related practices have been rethought in many countries, from local production to local consumption and distribution. This is evident by the numerous local initiatives that are tackling these issues by proposing alternative and innovative practices that are ecologically and socioeconomically sustainable (Booth and Coveney, 2015). This includes urban agri-food systems, including in several of the major cities of the global North (Vicente-Vicente et al., 2021).

As a result, all over the globe, various new ways and practices have emerged to develop sustainable alternatives to the conventional agri-food system. Many of these initiatives have innovated and proposed “alternative paths” around three sets of practices associated with the functioning of agri-food systems (Forssell and Lankoski, 2015). First, most promote or implement production practices that are environmentally and socially conscious, capable of facing future ecological challenges, and more specifically climate change and the erosion of biodiversity. Such examples include organic, peasant or agroecological production models. Second, in many urban contexts we increasingly observe institutional and citizen-driven experimentation to reconnect agriculture and food through socio-economic innovations and shorter marketing chains.<sup>1</sup> Short and proximity circuits (Prally et al., 2014) have become an archetype of these innovations for urban food supply, and are aimed not only at reducing the geographical distance between food production and consumption, but also the cognitive and information distance. Thirdly, these alternatives attempt to reconfigure the modes of governance of agri-food systems. They question the power relations

within food chains and invite the development of a food democracy (Renting et al., 2012). These sectors are experimenting with participatory and cooperative modes of organization and governance, where the actors at the heart of these networks (i.e., producers, distributors, consumers) are trying to make decisions jointly, both to define ways of producing and to rethink food distribution and “eating well”. Through access to (and participation in) decision-making processes, and by giving back power to all actors in improving the distribution channels, such alternative food initiatives are working toward building a food democracy, anchored in values of social justice and equity (Lohest et al., 2019).

In most cases, alternative food initiatives combine innovations across several of these three sets of practices to improve the sustainability and resilience of the agri-food system. Indeed, many authors have hypothesized that solving the highly interlinked environmental, health, social and economic challenges related to the functioning of the globalized agri-food system would benefit significantly from the innovations promoted by such alternatives (Marsden et al., 2000; Lamine, 2015; Maye and Duncan, 2017; Chiffolleau and Loconto, 2018; Chiffolleau, 2019). In terms of the environment, these could enable the better preservation of natural resources through more environmentally friendly production methods and reducing the distance between the points of food production and consumption. In terms of the economy, it is expected that a smaller number of intermediaries could improve the distribution of added value and the livelihoods for small producers, as well as facilitate greater financial accessibility at the end of the food chain. Finally, the relational proximity linked to exchange practices could create social links and greater transparency about the quality of food products, allowing for forging and maintaining trust between actors in food chains.

However, the development of alternative food initiatives that seek to catalyse societal transformation would require new modes of inclusive and solutions-oriented research (Gernert et al., 2018). Participatory action research (PAR) and transdisciplinary research, are two such ways of doing research, which although distinct in their origins and epistemological foundations, share many common points and have been used in the context of alternative food initiatives (Hermesse and Vankeerberghen, 2020).

PAR encompasses various approaches with diverse origins (Kindon et al., 2007), and seeks to engage practitioners from academia, non-governmental organizations, associations, public agencies, industries, and commercial enterprises. Academic practitioners often come from very diverse disciplines, particularly within the social sciences (Greenwood and Levin, 2007). Despite some considerable methodological, epistemological, and political differences, most PAR practices share some common characteristics such as (a) the active participation of researchers and societal actors in the co-construction of knowledge, (b) the promotion of critical awareness leading to individual, collective or social change, and (c) the building of alliances between researchers and societal actors throughout the research process (McIntyre, 2008). As a result, PAR sits at the intersection of three fields, namely research (knowledge production), action (experience and transformation), and participation (life in society and democracy) (Chevalier and Buckles, 2013). To achieve this, PAR entails some distinct research mechanisms in which civil society actors and researchers collaborate to produce knowledge in the service of societal transformation. Thus, PAR has the double ambition to promote the participation

<sup>1</sup> Frequently cited examples of urban public food transition strategies include the cities of Toronto in Canada (Blay-Palmer, 2009), Belo-Horizonte in Brazil (Rocha and Lessa, 2009), Bristol in the United Kingdom (Reed and Keech, 2017) or Perpignan in France (Perrin and Soulard, 2014). These examples show that the city can be an appropriate scale of action to weave new links between food chain actors and build more sustainable food systems (Sonnino, 2009).

of citizens and associations in research activities and the active engagement of researchers in solving social challenges. As a field, PAR is characterized by methodological plurality, including softer research and engagement mechanisms that consider citizens as “simple” providers of data for science, to stronger conceptions of “participation” understood as an active collaboration between researchers and citizens (Dedeurwaerdere, 2014). In stronger conceptions of participation, the stakeholders directly affected by the research outcomes take an active role throughout the research process and are sometimes called co-researchers (Mackenzie et al., 2012). In such contexts “it is no longer a matter of extracting observations or knowledge from the citizen in order to feed the researcher’s database, but rather of co-constructing adapted research projects with the citizen, the course of which will be characterized by a permanent collaboration leading to a better understanding of the phenomena and to the joint elaboration of solutions, a condition for an effective societal acceptance” (GDR PARCS).<sup>2</sup>

Similarly, there is no single definition of the term transdisciplinarity (Mobjörk, 2009), or how to approach or engage in transdisciplinary research. There are some recurring commonalities such as “collaboration between academic researchers and social actors”, “integration of knowledge”, and “an orientation toward concrete problems” (de Jong et al., 2016). Although transdisciplinary research developed primarily around issues related to climate change and environmental sustainability, it has expanded into many other fields such as technology, education, arts, and the social sciences (Bernstein, 2015). Generally transdisciplinary research approaches aim to reconcile scientific expertise from different disciplines, and at the same time bring in the research process expertise from other non-research stakeholders and actors (Popa et al., 2015). By transgressing disciplinary boundaries to bring forth a new form of knowledge (Piaget, 1967), transdisciplinary research seeks to contribute to societal transformations by producing knowledge that is both scientifically sound and socially-relevant (Herrero et al., 2019). Transdisciplinary research approaches are now recognized as possible levers to inform efforts seeking to enhance sustainability and/or achieve transition for different social issues (Hirsch et al., 2006; Brandt et al., 2013; Mauser et al., 2013; Popa et al., 2015). Indeed, this approach and the specific methodological tools are particularly relevant when dealing with complex issues, such as urban resilience or fair and sustainable agri-food systems. Mobjörk (2010) distinguishes two types of transdisciplinary research: consultative transdisciplinarity and participatory transdisciplinarity. The former is understood as interdisciplinary collaboration between scientists who take into consideration the perspective of societal actors. The latter considers scientists and societal actors as equal partners each retaining their expertise throughout the research process, with the knowledge of societal actors fully integrated into the research process (de Jong et al., 2016). This approach is sometimes also referred to as the “strong” conception of transdisciplinarity (Max-Neef, 2005; Rigolot, 2020).

This paper aims to show how participatory and transdisciplinary research can provide valuable insights to inform the transition of agri-food systems. In particular it highlights the contributions of

six projects funded under the Co-Create call in Belgium<sup>3</sup> to the understanding of agri-food system transition processes in Brussels. These projects ran from 2015 to 2018–19, and have been part of broader efforts and initiatives implemented and operating for many years. Here we do not present an in-depth analysis of the six Co-Create projects or their specific results.<sup>4</sup> Instead, we seek to bring out some collective reflections by members of the six projects, as we believe this to be the added value of the six action research projects. This is because in some sense these projects have created a historical *momentum* that has encouraged, or even forced, the placing agri-food systems transitions on the political agenda in Brussels.

Section 2 describes the objectives and societal challenges that guided the six Co-Create projects to rethink agri-food systems in Brussels. Section 3 therefore highlights two types of insights that are commonly shared by the six projects. The first consists of a series of recommendations that have been drafted by the six Co-Create projects for public authorities to accelerate and solidify the urgent changes needed in the food sector. The second includes findings that address the epistemological and methodological limitations and strengths of conducting co-creative research processes on food transition. Finally, the conclusion offers a look at the challenges that these six projects raise for leading an urban transition toward sustainable and accessible food supply for all.

## 2. Contextualization and methodology

### 2.1. Study site: Brussels and its agri-food system

Like in most cities, the agri-food system of Brussels is largely unsustainable. A study on plant production potential within the Brussels region revealed that only 0.1% of the fruits and vegetables consumed by its inhabitants is produced within the Brussels Capital Region (Boutsen et al., 2018). Moreover, at the Belgian level, the food chain contributes to 31% of the greenhouse gases emitted in Belgium by an average household (Bruxelles Environnement, 2015). Nearly 55,000 Brussels residents rely on social food aid (Myaux, 2019) and an estimated 35% of the city’s population is living on or near the poverty line (Observatoire de la Santé et du Social de Bruxelles-Capitale, 2018). These people are often forced to rely on low-quality food items acquired at knock-down prices, and are highly exposed to the health risks by a poor diet (e.g., obesity, diabetes, weakening of the immune system).

In view of these dual challenges of developing a sustainable local agri-food system and enhancing the accessibility to healthy food, there has been in the last 15 years a rich associative and citizen-driven effort to encourage sustainable food consumption and production in Belgium, and more specifically its capital, Brussels (Stassart et al., 2018). One of the most historical actors in the city’s agri-food system is the non-profit association *Le Début des Haricots* that has been

<sup>3</sup> The Co-Create projects are participatory action research projects financed by Innoviris, the Brussels Agency for Research and Innovation. In French-speaking Belgium, this is one of the only calls specifically dedicated to the public funding of co-creation research projects, which makes it both innovative and experimental.

<sup>4</sup> A detailed analysis of each of these six projects can be found in the book elsewhere (Vankeerberghen and Hermesse, 2020).

<sup>2</sup> Refer to: [www.gdrparcs.fr](http://www.gdrparcs.fr).

promoting (since its inception in 2005) urban agriculture production that is respectful both to the environment and workers through the implementation of concrete alternatives in the Brussels-Capital Region. Another pioneer in the transition to a sustainable agri-food system in the region is the non-profit organization *Rencontre des Continents* that has been active since the 1980s. This organization has used food as a theme and gateway to the educational approaches it offers to assist Brussels citizens obtain a better understanding of the political, social, economic, cultural and environmental issues at stake.

Together with other actors, these two associations have played a leading role in the consolidation of a policy agenda and programming activities on sustainable agri-food systems by the Brussels association sector. Recently numerous professional initiatives have been integrated in these efforts for sustainable agri-food systems and have been structured into networks that have rapidly gained in scope and visibility. In 2008, wishing to unite their strengths and their various expertise in the field of sustainable agri-food systems, many of the current actors within Brussels (e.g., associations, NGOs, consultancies, hotels, restaurants and cafés sector, distributors, producers, educational institutions) gathered to create the Network of Brussels Actors for Sustainable Food (RABAD—*Réseau des Acteurs Bruxellois pour l’Alimentation Durable*). This network aims to develop a food supply system that is accessible to all, and to an agricultural system that is respectful to the environment and producers (including fair pay). In 2009, another key network was formalized in Brussels, linking producers and consumers: the network of *Groupes d’Achat Solidaire de l’Agriculture Paysanne* (GASAP—i.e., Peasant Agriculture Solidarity Purchasing Groups). This network currently federates and supports more than ninety consumer groups in Brussels and about thirty producers. Its objective is to support small-scale agriculture and local producers using agricultural practices that respect the environment and traditional knowledge (Manganelli and Moulaert, 2018).

In parallel to these efforts, and often under their influence, agricultural production spaces have been emerging in Brussels and its periphery. These areas, mainly market gardens and/or small-scale livestock farms, adopt mostly small-scale farming practices that are local and environmentally-friendly, and supply consumers in Brussels through short value chains (e.g., direct sales, buying groups, restaurants, stores). These agricultural production initiatives are sometimes associated with educational projects or other social purposes.

Furthermore, there is progress on the food distribution sector side. Organic, natural and fair-trade food stores are multiplying, while online sales of local products, often organic and sometimes directly from the producer, are developing with the expansion of digital applications. There have also been changes in more traditional distribution channels, such as supermarkets, for example through the creation of cooperative supermarkets, anchored in their neighborhoods and supplied by local channels.

Numerous initiatives working on social justice, the fight against poverty and the right to quality food for all are also participating in this movement for sustainable food in the city. For example, the CAA (*Concertation d’Aide Alimentaire*), a group working on food aid, has been bringing together organizations active in food assistance in the Brussels Region (and in Wallonia) for more than 10 years to support a real policy that guarantees sustainable access to quality food for all. In addition, citizens, sometimes supported by associations, are setting up horizontal solidarity systems that aim to promote

access to and sharing of food with people in precarious situations, while fighting against food waste (for example, by setting up systems to recover, transform and redistribute unsold food). Finally, this urban movement for sustainable food in Brussels is part of (and contributes to) larger initiatives, such as the recent Agroecology in Action (AIA) movement, which aims to gather, support, and multiply the numerous dynamics and projects related to agroecology and food solidarity in Belgium.

## 2.2. Study projects: Objectives and challenges

### 2.2.1. General overview

The Co-Create call of proposals and the selected projects employ the term co-creation research (or co-research). This is close to both PAR and transdisciplinary research as it relates to their efforts toward societal transformations (see Section 1). It views co-research as a process in which social actors conduct research in collaboration with professional researchers, as described in its funding program:

“Co-research is more than involvement, it requires the active participation of those involved in the entire innovation process (from project design to the valorisation of results). [...] It is therefore not a matter of juxtaposing the words research and action, but of real participation by all the participants in a research project rooted in reality. This is not an equality of skills and roles but a complementarity and recognition of multiple and diverse knowledge and abilities” (Innoviris, 2019, p. 9).

Essentially all project partners are considered as knowledge holders and producers. This vision is inspired by the notion of the Third State of research (ALLISS, 2017),<sup>5</sup> which encompasses the multitude of so-called “civil society actors who are generally not involved in innovation and research activities (e.g., associations, communities, small businesses, unions)”. In this sense the concept of co-creation in the call comes closer to transdisciplinary participatory research that adopts a stronger conception of participation (Section 1).

Collectively, the six projects funded through the first generation of the Co-Create Call (2015) have actively sought to respond to the challenge of being at the intersection of “research” and “action”. Furthermore, as discussed above, they attempted to engage meaningfully everyone involved in the research process as a holder and/or producer of knowledge, adopting a vision of complementary skills. The road between the theory described in the Call and the research implementation of the six projects has been long, fraught with difficulties and paved with trial and error. However, as discussed in this paper, these projects have demonstrated how co-creation research can contribute to agri-food system transition in urban areas, as well as the practical, methodological and epistemological challenges and limitations of this approach.

In more concrete terms, each Co-Create project was carried out by a consortium of partners that brought together different actors (e.g., researchers, citizens, associations, administrations) concerned by the targeted issue. These partners had a shared awareness of the

<sup>5</sup> ALLISS is a French network of actors aiming to develop cooperation between civil society and research and higher education institutions.

need for change, which united them around a collective research project. Jointly, they set up exploratory co-research mechanisms that allowed for a dialogue between the different types of knowledge and expertise involved in order to produce knowledge across a common theme and in support of the desired change.<sup>6</sup> They experimented together and learned from it in a reflective approach. Because of the participation of field actors in this research and experimentation process, the knowledge and learning that resulted was supposed to be directly actionable by the research participants.

In its funding program, the Co-Create Call invited the exploration and experimentation of innovations anchored in urban realities. To do so, projects were asked to implement one or more co-experimentation devices anchored in a context (e.g., a place in the city, a neighborhood, a building). In the first version of the call in 2015, these co-experimentation devices were referred to as “living labs”. Living labs refer to places of experimentation and co-creation populated by users within a real-life environment where users, researchers, companies, and public institutions develop together new solutions, new services, new products or innovative business models. One of the objectives of living labs is to participate in the development of new innovative systems in which users and citizens become actors of the system and not only passive receivers (European Network of Living Labs, Refer to: <https://enoll.org/about-us/>).

As mentioned above, at its launch in 2015, the Co-Create Call focused specifically on the theme of sustainable food in Brussels. Six projects were selected, each addressing a specific dimension of this vast issue. Table 1 briefly summarizes the characteristics of the six projects, and the major themes they covered.

In parallel to this first generation of projects, a Co-Create Action Support Center (CACOC, now called *Convergences*) was set up, which is also financed by Innoviris.<sup>7</sup> The partners of the six first generation Co-Create projects participated in activities organized by the Support Center that allowed dialogue between projects and also to provided concepts, questions and common tools around co-creation research and fair and sustainable food.

It should be pointed here, that the original title of the Co-Create call was: “for sustainable food systems in the Brussels Capital Region”. During the first year, and as a result of joint reflections between the projects and the Support Center, the title of the call changed, adding the word “fair” to reflect equity (access to sustainable food for all) to the already present notion of sustainability (environmental, economic, societal). This evolution is significant in that it moves beyond the generally observed tendency of thinking food system transition under an environmental lens, to consider dimensions that are often left out such as social justice. The theme of “fair and sustainable food

systems” was therefore the one that occupied the first generation of Co-Create projects.<sup>8</sup>

In one way or another, the six projects adopt a systematic thinking about fair and sustainable food: “conceiving objects as systems” (Morin, 1977, p. 100), that is, they see food systems as sets of networks of interdependent actors and elements. It is indeed urgent to reconstruct the reality of agri-food systems, artificially fragmented by professional specializations and public action sectors. Thinking about the sustainability of agri-food systems and building benchmarks for a fair and sustainable food supply can only be done by considering a complex combination of issues. Although the different projects had slightly different foci (Table 1), at the heart of each project was the importance of co-creation of knowledge to enable the emergence of relevant innovations that consider the complexity of food issues.

### 2.2.2. Spincoop and ultra tree: Enhancing the sustainability of market-oriented garden-based food production in urban areas

As in other urbanized regions, certain dynamics in the Brussels-Capital Region (e.g., associative, professional, or public) support the relocation of agricultural production near the city. Their ambition is twofold: (a) to preserve peri-urban agricultural land from real estate pressures, and (b) to encourage agricultural activities in Brussels and its periphery. Using the perspective of urban food belt development, it is necessary to deploy small-scale agriculture as well as to create a link between producers and consumers. Since about 2015, about thirty new small-scale farmers who are not coming from a family farming background started production in the Brussels Region (Boutsen et al., 2018). This reflects a broader phenomenon observed in the European agricultural sector, namely the emergence of new farming activities that are not family farmers (Sinai A., 2013; Wilbur, 2014), e.g., in France nearly 30% of farming activities are conducted by people <40 years old (Lefebvre, 2009). This occurs in a global context where occupation in the agricultural sector has been reducing rapidly, e.g., in Belgium 67% of farms have disappeared since 1980 (Direction générale des statistiques, 2017). These “neo-farmers” usually turn to organic farming and other forms of ecological farming.

The Spincoop and Ultra Tree projects have sought to shed light on the ways in which these neo-farmers are building the future of sustainable agriculture in Brussels, and the challenges they face. In particular, they addressed the question of the viability of (peri-)urban market gardening models. The Spincoop research collective worked on analyzing (a) the factors influencing the agroecological viability and adaptation of the SPIN Farming model by the Cycle Farm cooperative, (b) the conditions necessary to contribute to the development of fair and sustainable agri-food systems in Brussels.

The Ultra Tree project questioned the sustainability of peri-urban market gardening projects through the design of a concrete tool for

6 The Co-Create Call targets innovations that are anchored in society. This includes (a) having a purpose centred on human needs, (b) responding to new or poorly met societal needs under current market and social policy conditions, (c) placing societal value before profit, and (d) considering the socio-technical components of the innovation and of the problem addressed.

7 The Support Center’s mission is to accompany and support Co-Create projects during their implementation, by supporting reflexivity and relational learning (Van Dyck et al., 2018). It offers spaces for exchange and training to share experiences and resources around Co-Create research and urban resilience.

8 Since then, the Co-Create call has undergone several changes. In particular, the fair and sustainable agri-food systems theme has been expanded to include urban resilience, while the concept of the living lab has been abandoned in favour of the term “co-experimentation device in a real context”. Beyond these changes, the Co-Create call retains its strong vision of co-creative research seeking to facilitate societal transformations towards a desired and sustainable future in Brussels.

TABLE 1 Characteristics of the six co-create projects.

Field of research/social innovation	Project name	Research objectives	Main publications or others outputs
Agricultural production in urban areas	Spincoop	To analyse the factors and conditions that influence and determine the viability of the SPIN Farming model (Small Plot Intensive Farming) in Brussels as adapted by the Cycle Farm cooperative.	(Plateau et al., 2019; Maréchal et al., 2022).
	Ultra Tree	To effectively support the installation of peri-urban market gardening projects on small areas to satisfy fruit and vegetables demand in Brussels in a sustainable manner.	(Hermesse et al., 2018, 2020) For Spincoop and Ultra Tree, refer to the viability Compass (support tool for producers) (Innoviris, 2019)
Food distribution and marketing	Choud'Bruxelles	To propose collaborative and viable logistical solutions to address challenges facing short-distance distribution channels of local food products in and to the Brussels-Capital Region.	e-CHOU digital platform (not available online)
	CosyFood	To refine the knowledge about the practices and performances of alternative food distribution channels in Brussels in terms of sustainability, and to improve them through specific tools.	(Lohest et al., 2019)
Accessibility and democratization of sustainable food	Solenprim	To increase in a sustainable manner the freedom of choice and the scope of food uses among underprivileged residents of Brussels by considering innovative schemes and involving the food aid sector in the transition to a sustainable food system.	(Damhuis et al., 2020; Damhuis and Serré, 2021)
	Falcoop	To study the conditions through which the social innovations carried by the BEES Coop supermarket can facilitate the accessibility of sustainable food to all residents of Brussels.	Webdocumentary: <i>Tous à la même enseigne?</i> (Online at: <a href="https://falcoop.ulb.be/">https://falcoop.ulb.be/</a> ) (Fourat et al., 2020; Fourat and Jankowski, 2022)

For more information about the main outputs and publications, refer to the webpage <https://www.cocreate.brussels/projets/>.

self-assessing the viability of market gardening activities: the “viability compass” (Hermesse et al., 2018). The team also demonstrated the added value of the territorial anchoring of these market gardening projects for the urban social fabric, as well as the responsibility of public and political authorities in the sustainability of market gardening projects in the Brussels (peri-)urban area.

Although focused on production issues, these two projects did not disconnect their research approaches from ways of distributing production. Instead they explored how to make their economic activities profitable and remunerative, or even to participate in a “democratization” of food *via* innovative governance models and/or hybrid production models (i.e., combining production and education, production and professional reintegration, or production and awareness-raising).

### 2.2.3. CosyFood and Choud'Bruxelles: Meeting the challenges of alternative food distribution channels

The CosyFood and Choud'Bruxelles projects focused on innovations in alternative food distribution. CosyFood anchored its approach in the abundant literature on alternative agri-food systems (Deverre and Lamine, 2010; Maye and Kirwan, 2010; Tregear, 2011), and set out to evaluate in a participatory way the sustainability promises generally attributed to short circuits and alternative distribution channels. By reconstructing a sustainability framework with the consortium partners, this project implemented an approach to the agri-food system that considered it as an entanglement of sub-systems and networks of actors. Thus, this research highlighted the interdependence between food production, distribution and consumption, and the interactions between them in the context of building a more sustainable agri-food system. The Choud'Bruxelles project focused on one of the major challenges facing alternative food initiatives in general and short circuits in

particular, namely logistics. Favoring a collaborative approach to logistics, the project addressed the question of how to co-create new innovative, sustainable, economically viable and adaptable distribution solutions in and to the Brussels-Capital region.

### 2.2.4. Solenprim and Falcoop: Overcoming the difficulties of a true food democracy

The Falcoop and Solenprim projects originated from the observation that sustainable food initiatives have difficulty in reaching a wide variety of societal segments, reinforcing the growing food divide (Lang, 1999; Paturel and Ramel, 2017). Falcoop has particularly questioned the governance of alternative agri-food systems, specifically not only how to produce food in an environmentally-friendly manner and to distribute locally, but also how to enhance the accessibility to this food. The starting point is that when seeking to re-humanize our agri-food systems, the focus should be on social inequalities in access to alternative food products (Closson et al., 2019). Alternative agri-food systems struggle, among other things, to resolve the tension between producer livelihoods and product accessibility for all, thus challenging the link often established between reducing the number of intermediaries and accessibility. Moreover, alternative food systems encompass certain social and cultural codes that are not representative of a large fraction of Brussels population such as immigrants and/or the socio-economically disadvantaged. For example, such segments of the population are rarely consumers in sustainable food spaces. Thus, improving access to quality food for all, in the vision of a food democracy, has been one of the issues at the heart of the Solenprim project. The project's contribution has been to examine why the numerous initiatives of alternative food systems (and the relevant public strategies) fail to include properly those experiencing food insecurity.

### 3. Results and discussion

#### 3.1. Involvement in advocacy: Recommendations for policy and practice

The alternative food systems covered by the Co-Create projects reflect a common ambition to experiment and initiate the transitions of agri-food system toward more sustainable and resilient states (Kirwan et al., 2013; Maye and Duncan, 2017; Rossi, 2017). However, as of the writing of this paper, the broader transformative potential of the six projects remains limited, partly due to their local and small-scale actions. Yet, the possible multiplication of such innovative initiatives (especially in urban areas) and their alignment into bigger networks could open up windows of opportunity to accelerate larger-scale transformative change in agri-food systems. For example, many urban-related public strategies and institutional innovations associated with agri-food systems and food governance have been inspired by citizen-based, association-based and professional initiatives, and the new networks they build (Morgan, 2009; Matakana, 2016). While in many cases, the primary concern of such actions is to ensure future food security (Morgan and Sonnino, 2010), their objectives can be quite varied. For example, objectives can include the regeneration of the social fabric *via* food-related public actions, economic development, improved resilience of food supply, improved food security, environmental protection, enhanced public health, or strengthened social integration and food culture, among others (Brand et al., 2017).

Such increased institutional interest on food transitions can also be observed in the Brussels-Capital Region. Indeed, inspired by the engagements of citizens and associations around issues of food production-distribution-consumption, public institutions in Brussels have been developing action strategies around sustainable food since the early 2010s. For example, the Brussels Government set up the Employment-Environment Alliance (2011–2015) aiming at stimulating the economy, creating employment and improving environmental quality within the city (Alliance emploi-environnement, 2014), with “sustainable food” becoming the fourth axis. Subsequently, the strategy “Good Food—Toward a sustainable agri-food system in the Brussels-Capital Region” (2016–2020)<sup>9</sup> was launched in 2016. The vision, principles and actions of this policy were developed in collaboration with about one hundred actors from the food sector. The underlying aim is to place food at the heart of the discourse, by addressing food across the different economic, social and environmental dimensions of the urban system. To achieve this, it intends to encourage and bring together the many relevant initiatives in the city in order to fulfill a twofold ambition. The first is “producing better” (i.e., growing and processing healthy and eco-friendly food locally) and the second is “eating well” (i.e., making a tasty and balanced diet available to all, composed of mainly local products). To achieve its objectives, the Good Food strategy proposes financial support instruments (*via* calls for projects), sets up food label and support innovative projects. The years 2015–2016 were particularly pivotal for these efforts as the public institutions

in Brussels confirmed their investments in the theme of sustainable food. In 2015, Innoviris (the Brussels agency for research and innovation) opened a call for research projects on co-creation (Co-Create) with the theme “the development of sustainable food systems in the Brussels-Capital Region”. This call was essentially included in the framework of the “Sustainable Food” axis of the Employment-Environment Alliance (see above), and aimed to create a space in which research can experiment with scenarios that draw alternative paths to the current agri-food system. In other words, the call sought to allow the many existing food-related innovations to self-reflect, improve their actions and find solutions to the challenges they face, while producing actionable knowledge for the development of a fair and sustainable agri-food system at the regional level. This first Co-Create Call also supported the research dimension of the Good Food strategy, as the selected projects have, in various ways, contributed to this public strategy their thoughts, findings and recommendations.

Overall the six projects funded by the Co-Create program generated research that produced knowledge and learning that responded to the need to achieve change in agri-food systems, and more broadly achieve their transition. Nevertheless, the first generation of Co-Create projects also acknowledged that the implementation of their research results and proposals for action was not always possible in the current context, as they faced institutional, legislative or economic barriers.

Based on their findings and reflections, the projects have collectively developed and published a plea that includes proposals for action for agri-food system transition aimed toward food actors and public authorities (Centre d’Appui de l’Action Co-Create et les Projets Co-Create 2015–2018, 2018). This emphasizes the important role of policies in supporting and implementing alternative food systems: not only through financial support but also especially through support for legislative, institutional and societal change. Such changes are indeed necessary to achieve a real transition toward fair and sustainable agri-food systems so that these alternatives do not remain only niches of innovation reaching a limited public.

First of all, this call for action highlights the need to anchor these structural, political or institutional changes in the reality of Brussels. To do so, it is essential that public policies rely on existing or emerging transformation efforts, and their experiences and networks, in order to make the most of current knowledge and avoid “reinventing the wheel”. Supporting these initiatives involves, among other things, removing certain legislative barriers that prevent the full implementation of the results and proposals for action of these initiatives. Examples could be to facilitate access to land for farmers (Spincoop and Ultra Tree), implement logistical or technical innovation (Choud’Bruxelles), or recognize and value the multi-functionality of agricultural spaces by allowing volunteer assistance (Ultra Tree). The call for action also points that it is essential to reflect on the conditions and modalities of realizing a fair and inclusive agri-food system transition, in order to build collective and solidarity-based solutions to enable a real implementation of the right to food. Several avenues have been identified by the projects, such as supporting the community approach in social work (Falcoop) and creating local food collectives at the neighborhood level (Solenprim). However, with one point of attention: any approach aiming at a real implementation of the right to food can only really bear fruit if it is part of a public program to fight against social inequalities

<sup>9</sup> This public policy was launched at the initiative of the Brussels Minister of the Environment, Agriculture and Quality of Life. It is supported by the Brussels Environment and the Agriculture Unit of the SPRB (Brussels Regional Public Service).

and the structural causes of poverty (Gottlieb and Joshi, 2010). To achieve this, it is particularly important to involve “populations in the development of responses to the difficulties they encounter with regard to food” (Devlésaver, 2018, p. 17).

Secondly, a point of attention commonly raised by the six projects is the importance of pooling resources within the fair trade and sustainable food sector, as well as the need to federate its actors (from production to distribution and consumption) in common structures to facilitate exchanges. Indeed, as the individual projects have shown, agri-food systems are complex and we must take into consideration the interactions between its different components. Nevertheless, this will only be made possible through the decompartmentalization of public policies and funding. In particular as quoted in the call for action:

*“As food is at the interface of many competences (social, health, economy, environment, agriculture, research, education, culture, mobility...) that are not coordinated and distributed between the different levels of power (federal, community, provincial, regional, communal), it would be necessary to be able to mobilize and involve these different competences in order to elaborate, as far as food is concerned, coordinated and coherent political strategies and action programs, based on a global and systemic vision” (Centre d’Appui de l’Action Co-Creer et les Projets Co-Creer 2015–2018, 2018, p. 59; excerpt from the 11th proposal of the advocacy).*

In order to avoid reproducing social or environmental injustices, it is necessary to consider the political conditions of knowledge production and use as well as their consequences by promoting a reflexive approach to science and research. To do this, it is essential that research funding agencies recognize the importance of this type of approach, whose results, knowledge and learning cannot always be evaluated according to the usual research standards<sup>10</sup> (Hermesse and Vankeerberghen, 2020). Indeed, the purpose of research on food transitions cannot be limited to technical and practical solutions, as collective and reflexive learning is a fundamental driver of these change processes (Van Dyck et al., 2018).

### 3.2. Methodological and epistemological lessons learned

There is a real need to implement appropriate methodologies and engagement processes to enable the effective collaboration among all relevant stakeholders (e.g., researchers, citizens, associations, administrations), to contribute effectively to co-creation research processes through their individual expertise. The experience gained

<sup>10</sup> For example, a consultation of the field actors involved in the Ultra Tree project undertaken in May 2022 made it possible to realise the extent to which the Open Source tools created within the framework of the project are still being used four years later. These included, among others the “viability compass” to support coaching in market gardening and the “good practice guide” to inform individuals interested in a professional approach to market gardening. The analysis about the multi-functionality of urban agriculture was also instrumental for a political plea and the establishment in 2020 of a Brussels Federation of Urban Farmers.

from the six Co-Creer projects suggests is that there is no ready-made recipe for effective stakeholder collaboration that can be transposed from one project to another (let alone other geographical and thematic contexts). Such points for transdisciplinary research have been made elsewhere in the literature (Nicolescu, 2014).

Overall, in each of the six Co-Creer projects the partners had to creatively build co-creation methodologies adapted to the specificities of each project and its actors. Moreover, the experience gained across several projects shows that such methodologies must be able to evolve and adapt to the changing realities of co-creation research. Similar points regarding the importance of adaptive methodologies in co-creation research has been made elsewhere in the literature (e.g., Lang et al., 2012). In order to facilitate the transition toward more equitable and sustainable agri-food systems in Brussels, the co-creation research approaches of the six Co-Creer projects attempted to integrate the diverse expertise of the actors engaged in the specific themes. However, this active participation of the stakeholders concerned in the whole research process poses many challenges. Some of the main challenges identified in the literature, include among other asymmetries of power (Barnaud et al., 2016; Godrie et al., 2021). Below we discuss in more detail some of the critical lessons learned from the six Co-Creer projects for co-creation research and the effective stakeholder engagement more generally.

First, it is necessary to put into perspective the notion of active participation of those involved in a co-creation research process. Indeed, when engaging in co-creation research it does not necessarily mean that all of the involved actors participate (or should participate) permanently in each step of the project. The length and type of participation should be variable and modulated according to the needs of the project and the actors involved. For example, the Choud’Bruxelles project set up a two-phase methodological framework to enable co-creation within the consortium: (a) an internal co-creation process for the consortium partners, and (b) an extended co-creation process that includes more widely actors interested in sustainable agri-food systems (see next point also). This type of staged approach does not entail the equal contribution of all research participants in co-creation research activities (i.e., equality of contribution) but attempts to combine the diversity of partners in the co-creation process, with each contributing through their skills and expertise (i.e., equality of recognition). For this reason, the term “co-researcher” is sometimes used to designate the participants involved in the co-creation research process. While this term has the advantage of recognizing the contribution of an equally legitimate and relevant knowledge and expertise in the research process, it might raise concerns to some participants. For example, its use tends to erase the specificity of each actor’s contribution to the process. It is indeed necessary to recognize this specificity of skills and expertise, which is crucial to the development of co-creation research and projects.

For this reason, some Co-Creer projects preferred to maintain a distinction between “researchers” and “stakeholders”. At the same time they avoided splitting theory on the one hand and implementation on the other, as such a view would be the very antithesis of the commitment of participatory action research (McTaggart, 2001). The point here is that whether research participants are professional researchers or practitioners, each has specific skills that enables them to contribute to the research process. In this sense involvement in a co-research project requires a shift in perspective that is not, however, without difficulty. For



researchers, it requires breaking with common research approaches, and instead share research activities with all project partners and propose methodological approaches that enable the integration of non-scientific expertise in the research process. For stakeholders, it requires understanding the issues at stake during the research process, and taking ownership of them in order to define their specific role within this process. Such points about the need to change the usual mindsets of research participants in co-creation processes has been raised extensively in the transdisciplinary research literature (Mauser et al., 2013). Yet, despite their necessity, these shifts and learning processes take time.

Second, the effective participation of non-academic actors in co-creation research is also closely intertwined with the issue of remuneration, especially when considering that non-academic partners are often requested to engage in kind thus diverting significant time from their professional activities (Barnaud, 2013). One of the innovative aspects of the Co-Create projects was that majority of the partners in the six consortia, whether coming from the research community or not, have been funded by the respective projects. This was considered important to ensure the strong commitment of the partners to the projects and to professionally value the skills of the actors, however diverse. For example, the Spincoop project hired the two market gardeners engaged in the project as part-time employees. However, other projects involved at certain moments of the co-creation process actors from outside the consortium that were therefore not paid within the framework of the project. This was the case, for example, for the market gardeners in the Ultra Tree project, food aid beneficiaries in the Solenprim project, or food producers in short food supply chains within the Choud'Bruxelles project. These experiences of Co-Create projects reaffirm the difficulty of involving unpaid actors in co-creation research processes, despite being important for the process. For example, the producers engaged in short value chains of fair and sustainable food often suffer from the weak economic viability of their produce, as in a sense they carry on their shoulders the economic distortions induced by large-scale distribution of cheap food on the real costs of food production. Their motivation to engage in such unpaid research processes often emerges from the conviction that these processes can bear fruit and contribute toward a slow but certain transition of the agri-food system (and possibly an improvement of their work).

The above reflect well one of the presuppositions of co-creation research, namely that the research output is directly beneficial to the actors involved and can be acted upon by them. Actually many actors from Co-Create projects have shared how these research experiences have brought out learnings that can contribute to improving their daily practices.<sup>11</sup> In addition, several actors testified that they were satisfied with these collaborations over the 3 years of the Co-Create projects, as it led to the better recognition of their work. For example, producers involved in the CosyFood project said that they had “stuck out” in the co-creation process thanks to increasing the recognition of their work among consumers. Market gardeners involved in the Ultra Tree and Spincoop projects proudly expressed that their

aspiration toward achieving a fair and sustainable agri-food system was a key element driving their efforts to ensure the viability of their operations. Nevertheless, the often unstable and difficult economic conditions in which they operate essentially limit their participation in research processes, as their available time and energy are devoted to maintaining their activities, or even surviving. In order to respond to this constraint in a creative way, the Ultra Tree project created two “in-between” positions beyond the two categories mentioned above: (a) participants outside the consortium that were paid within the framework of the project as they played the role of transmission belt between the researchers and (b) unpaid stakeholders, namely market gardeners that contributed during the process of setting up the project but had very little time available to devote to the project.

Finally, beyond the practical, temporal, and economic dimensions of the co-creation research process, we must also take into consideration some equally important social, cultural, symbolic, and educational dimensions, which may cause inequalities in access to participation in this type of research process. The Solenprim project chose to work with consumers in precarious situations, as the consortium was keen to tackle the delicate issue of participation by vulnerable groups. In addition to the ethical considerations already mentioned (e.g., engaging an economically disadvantaged group in co-creation research), there was also the question which conditions would allow this stakeholder group to participate fully in the research process. Concerned about this issue, the Solenprim project team worked on developing methodological approaches aimed at avoiding standardizing the definition of “eating well”. To achieve this, the project leaders set up initially research approaches to bring together only food aid beneficiaries. This reveals how crucial it is for the projects (and the Co-Create call more broadly) to think about these differences in access to participation in research processes and to set up adequate mechanisms to remedy them, in order not to exclude certain groups from transitions toward fair and sustainable food. This challenge resonates with crucial questions: Who are the actors absent from research on food agri-system transition? Why are they absent? How can they access these research opportunities? This issue about the need to engage properly “invisible” actors in co-creation processes has been discussed extensively in the transdisciplinary research, both related to food systems (Jacobi et al., 2021) and more broadly (Godrie et al., 2021).

## 4. Conclusion

This article contributes to the understanding of agri-food system transition processes and the actions or avenues that could facilitate them. As there is still a long way to achieve real transitions toward fair, sustainable and accessible agri-food systems for all, it is necessary to build the conditions for such transitions now. This paper describes how six transdisciplinary and participatory action research projects funded through the Co-Create call in Belgium, worked on agri-food system innovations in the same geographical and historical context (Brussels between 2015 and 2018). These six projects targeted different issues and aspects of social innovations for agri-food systems transitions, specifically falling within the categories of agricultural production in urban areas, food distribution and marketing, and accessibility and democratization of sustainable food. Beyond outlining some of the tangible research results in the paper,

<sup>11</sup> For example, some market gardeners participated in the five days of collective interviews during the Ultra Tree project shared how the collective analysis of their practices was a driving force for changing certain agricultural practices.

here we have focused on some of the cross-project collaborative activities between the participants of the six projects. By putting the projects' results into perspective and identifying future challenges it was possible, on the one hand, to place the transition of agri-food systems on the political agenda in Brussels. On the other hand, this collective work supported by the Co-Create Action Support Center made it possible to emphasize the need for a systemic approach to achieve transitions in agri-food systems, considering that food production, distribution and consumption patterns are interconnected within agri-food systems.

Despite the difficulties of implementing co-creation projects, particularly in terms of citizen participation, the concomitance of the six projects and the collective workshops initiated by the Co-Create Action Support Center have generated communicative enthusiasm and a certain dynamism about agri-food system transitions in Brussels. This is evidenced, among other things, by jointly drafting the recommendations contained in the plea to the political authorities of Brussels about the transition of agri-food systems. Furthermore as change in agri-food systems involves not only the transformation of practices but also the transformation of people (with the latter remaining largely invisible in the literature, scientific reports, and project evaluations), the collective and reflexive learning of the six co-create projects enabled many individuals to become actors of change for agri-food systems transition in Brussels. Furthermore, it allowed the research teams of the six projects to question certain risks of normativity in the definition of what is a fair and sustainable agri-food system, as well as the risks inherent to any political, citizen or research program or project on this field.

Efforts to enable agri-food system transitions in Brussels could benefit from the dynamism and will of its inhabitants. Citizens are a major component of the innovations studied within the six projects, and can thus become a formidable lever for enabling transitions toward a fairer and more sustainable agri-food system. However, citizen enthusiasm is not enough to enable changes in the dominant agri-food model dominated by conventional agricultural production and mass distribution channels. Niches are crucial for such transitions because they provide the seeds of systemic change. For this reason, all six research projects described the socio-technical lock-ins to innovations. It is therefore essential that public authorities collaborate in ongoing efforts to question the ethics and governance of current agri-food systems, and participate in the implementation of new policies for sustainability transitions. Armed with recommendations from

researchers and practitioners, public actors to assume their share of responsibility.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

## Author contributions

JH coordinated the writing of the paper. AV, FL, and AT collaborated on the writing of the paper.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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