

# CONFERENCE ABSTRACT

Session: FOOD LOSS, FOOD WASTE AND FOOD SECURITY

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## **Food Residue Management in the Circular Economy Perspective: A Crossroads of Challenges.**

This study addresses the pivotal controversies at the intersection of circular economy practices, with a specific focus on food waste management, and the roles played by farmers, businesses, and consumers. Amidst the swirling challenges of environmental sustainability, this paper navigates the urgent call for a sustainable overhaul of the global food system against the backdrop of escalating greenhouse gas emissions, climate change, and intrinsic fragilities of the food industry. Recognizing the dichotomy in agricultural policy termed “post-exceptionalism”—a nexus where conventional and avant-garde ideas, entities, and instruments converge, yet paradoxically engender resistance or gradual adoption of eco-friendly practices—it underscores the necessity to decipher the political dynamics fueling agricultural evolution amidst demographic expansion, urban sprawl, and shifts in dietary habits. Confronting these adversities, this study delves into the circular economy, touted as an innovative economic paradigm poised for inducing sustainability. This model is lauded for its emphasis on the reinvigoration of ecological systems, minimizing waste, and honing resource efficiency. It pays homage to the arena of food waste management, where the circular economy capacitates entrepreneurs to catalyze reform across several domains: optimal resource deployment, product innovation, and extending the life cycle of goods. At the heart of this debate is the formulation of adept policies fostering corporate environmental responsibility and measures targeting the diminution of food waste genesis. In this vein, the paper scrutinizes the legislative tapestries and policy frameworks buttressing the circular economy within the European Union, with a specific reference to the Italian legal framework, also looking at the United States one. It specifically focuses on managing and transforming food residues, examining existing legal criticisms and perspectives on converting waste into new value. This inquiry aims to illuminate the efficacy and hurdles of extant policies and proffers a vista on the trajectory of agrarian and environmental policymaking within the circular economy’s ambit with reference to the reduction of food waste, so focusing on the reconceptualization of food residue into newfound assets: by-products. An integral offshoot of this reconfiguration is the genesis of a “communal” and “social” ethos, wherein the establishment of interlinked integrative systems amongst various supply chain stakeholders begets novel value generation. This reappraisal of residues entails their value perpetuation, either in totality or in part, by identical or distinct entities, embedded within the same or an alternative productive nexus.

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### **Food waste: exploring the opportunities of a «legal home» beyond the waste law in the EU**

What's the current "legal home" of food waste in the EU approach? The EU current policies emphasize the need to focus on prevention of food waste, coherently with the United Nations Sustainable Development Goals and the waste hierarchy stated by the Food Waste directive (dir. 2008/98/CE), but it must be considered that this goal is still pursued mostly through awareness and other non-binding policy tools, while the lower levels of the hierarchy are subjected to a growing rate of binding rules. The proposal of the Commission on July 2023 (COM 2023 420 final, 5.7.2023) for a new directive amending the dir. 2008/98/EC about food sector promises not to overcome this approach: while it proposes to introduce binding goals on Member States about food waste reduction through "appropriate measures", these measures are still limited to developing and supporting behavioural changes, identifying and addressing inefficiencies, encouraging food donation, supporting training and so on. The UN SDGs and targets set by the EU about food waste need a more harmonized approach which will consider not only waste law and awareness policies, but to bring the food waste topic entirely within the food law framework. The "General Food Law regulation" (reg. EC 178/2002) allows to integrate food waste reduction and other sustainability objectives thanks to its expansive power provided by the horizontal nature of its principles and procedures (art. 4) and the connection between the enunciated objectives of a high level of protection of human life and of the environment (art. 5). A food law "umbrella" could lead to a very powerful integration of food waste reduction goals with the EU food production sector, enabling sustainability topics to act together with safety and quality issues in shaping the daily activity of food business operators along the supply chain. For example, obligations on food business operators to adopt a waste prevention plan and to measure their performances could be implemented, giving effectiveness to the aim to measure and reduce food waste in the EU market.

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### **Profiling Citizens on Perception of Key Factors of Food Security**

The urban agro-ecological transition, including food policies, may be crucial in facing environmental emergencies and improving agri-food systems, but is also a key factor in solving political and social issues with an agro-ecological approach. The main feature of food policies is being developed on

different levels and in different sectors of intervention, in a multidisciplinary approach, involving different policy areas and stakeholders belonging to public and private bodies, civil society and NGOs. Urban food policies in Italy were implemented through two key events: the first was the institutionalization of metropolitan cities, and second was the World Exposition hosted by Milan in 2015.

A stronger development of food policies can be observed in the northern and central regions of Europe, thanks to the influence of the Milan Urban Food Policy Pact; other important examples of food policy implementations are being carried out by the municipalities of Lucca, Pisa, Livorno and Bari. However, the development of these policies has not taken place inside a defined and organic national legal food system framework, so each urban policy is implemented mainly through private initiatives by business and civil society.

The Metropolitan City of Bari (MCB) aims to promote the transition of European food systems to efficient resource use and low carbon emissions, including the promotion of sustainable diets. Its “Manifesto for Sustainable Food Transition”, drafted inside the “Food Shift 2030” Project, is the evidence of the city’s commitment to setting the right direction for a local and urban food policy. In the light of this multifaceted scenario, this research aimed to identify MCB citizens’ profiles based on their demographic characteristics, viewpoints on food security, perceptions of the key factors related to food security.

Between July and November 2022, an online survey was conducted among citizens of the MCB, to collect data on citizens’ perceptions of food security and the importance they attached to 46 food security items selected from the existing thematic scientific literature. Descriptive analysis, principal component analysis and K-means cluster analysis were applied to the database. Four clusters of citizens were obtained and labelled based on socio-economic characteristics and key factors influencing food security perceptions. Specifically, the “Law-confident” (45% of citizens) and “Hedonist” (36%) showed the greatest confidence in “governance” and “quality certification” aspects. The “Capitalist” (15%) and “Conservatory” (4%) clusters were relatively small groups, characterized respectively by a positive perception of the standardization of food production and governance power, with a focus on strategies regarding food policy implementation, reduction of food loss and waste (FLW) and improvement of food quality certifications systems. The proposed approach and results may support EU policy makers in identifying key macro-areas and matters toward which to direct public funding to improve food security in urban areas, and to put in place actions enhancing citizens’ knowledge and awareness of key food security issues.

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**Ask Not What Food Production Has Done to Our Environment, But What Our Environment Can Do to Our Food: The Case for Environmental Conservation Through the Lens of Food Safety, Supply, and Sustainability**

For more than seven decades, environmental activists have tried to convince the public to care about our waning environment and the damage that human activity has inflicted upon it. Thanks to their herculean efforts, we have come a long way in environmental conscientiousness, protections, and legislative reform. But it has been a painfully slow, uphill battle. For most people, environmental harm still feels abstract, remote, and impersonal. Even climate change – the most well-known and directly felt environmental problem – cannot compete with pressing everyday problems like the cost of food and health care. But what if we could advance environmental causes as a byproduct of addressing people’s urgent concerns of being able to afford their food and making sure that food heals, rather than sickens them? Food production has long been perceived as an enemy of the environment by activists, scholars, and policymakers alike. After all, food and agricultural production is responsible for astounding levels of greenhouse gas emissions, depleted and polluted soil, irresponsible land use, deforestation, extinction or depopulation of wildlife and plant life, inhumane treatment of animals, pollution of aquatic environments, increased air emissions, spread of pathogens, and more. Not surprisingly then, the predominant narrative among environmentalists has been a demand for different food production and consumption patterns *for the purpose of* protecting the environment. This message has caused a deep chasm between environmentalists, who see this as a simple ask, and food and agricultural stakeholders, politicians, and consumers, who see this as an imposition on their lifestyle for a vague and far-removed benefit. By looking at the problem through the lens of more tangible, personal, and extant benefits—ensuring food affordability and improved health—this article aims to redefine the relationship between food and the environment as one of natural synergies. It argues that, by designing policies and initiatives focused on making food healthy and affordable, we can also address the most pressing environmental concerns of our time without alienating farmers, food producers, and consumers. The article proceeds in four parts. Part I catalogues the damaging effects of food production on the environment. Part II explores the current environmental approach to food, the public’s reactions and perceptions, and the slow rate of meaningful change. Part III offers an alternative approach. It explores the ill effects our polluted environment has on the quality of our food and links those to both negative economic impact on consumers and increased health problems. Lastly, Part IV proposes a non-exhaustive list of legal and policy initiatives to ensure safe, sufficient, and sustainable food for all, while promoting the interests of the environment in the process.

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### **The consequences of climate change and conflicts on food security and agriculture**

This abstract and the intervention during the “Food Law Academic Network Conference” aims to comprehensively analyse the conflicts’ impact on international food security and the right to food. Additionally, it will evaluate the potential short and long-term solutions to address food security. An often overlooked but highly significant aspect of the current ongoing conflicts is its impact on the food system. Indeed, as was shown during the pandemic pandemic<sup>2</sup>, the conflict and subsequent global food crisis may have an influence on progress towards the UN Sustainable Development Goals (SDGs), particularly on SDG 1 (No Poverty) and SGD2 (Zero hunger)<sup>3</sup>. It is undisputed that both climate change negative consequences and conflicts heavily disrupt agricultural systems, leading to widespread concern about global food security in the context of globalised agricultural markets<sup>4</sup>. Legislative policies, such as, for example, the Black Sea Grain Initiative Initiative<sup>5</sup>, should try to address these challenges by ensuring the safety and security of food supplies, promoting sustainable agricultural practices, and establishing mechanisms for emergency response and recovery. As a result, the transition to a healthy, egalitarian, and environmentally sustainable food system that substitutes traditional and regionally adapted crops for wheat and maize must be strengthened<sup>6</sup>. In the short term, several measures can be taken to ensure food utilisation, including minimising food waste and loss, eating a healthy diet, recycling food and adopting plant based diets, which may boost food resilience resilience<sup>7</sup>. Moreover, in the long term, funding for agroecology, which relies less on external inputs such as fertilisers and pesticides and instead valorises local and endogenous knowledge and resources should be increased to strengthen domestic food systems in the face of future shocks and crises.

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### **A perspective on the regulation of cultivated meat in the European Union**

Cellular agriculture refers to a method of food production that involves the cultivation of cells from animals or plants in controlled environments. In the European Union (EU), products of cellular agriculture are classified as novel foods. Novel foods require pre-market approval under the Novel Food Regulation before being placed on the market. Once a novel food is included in the Union List of Novel Foods, it can be legally sold across the Union.

The potential approval of cultivated meat has caused a significant political backlash. In the “European Protein Strategy” adopted in October 2023 by the European Parliament, the Novel Food Regulation

is considered as not fit for purpose for assessing the ethical, social, environmental and economic challenges posed by cellular agriculture. On December 1st, 2023, a ban on cultivated meat production and commercialization was adopted in Italy, and in January 2024 the delegations of Italy, France Austria and ten other countries submitted a note to the Council of the EU urging the adoption of a more comprehensive regulatory framework to evaluate the significant implications of products of cellular agriculture on the lifestyle of Europeans and the potential effects on their health and safety.

The adequacy of the Novel Food Regulation for dealing with products of cellular agriculture has thus been questioned. Unsurprisingly, the Italian ban has been supported by the Coldiretti, the Italian farmers association, and similar proposed bills against cultivated meat are always backed up by sector organizations, such as the Confédération paysanne in France or the Copa-Cogeca. Opponents frame cultivated meat as against the concept of a “just transition”: cultivated meat would threaten the European gastronomic heritage and harm traditional food producers. For this reason, they call for a more comprehensive approach than the Novel Food Regulation to control the disruptive impact that cultivated meat might have.

This contribution argues that the novel food framework is suitable for regulating the entrance into the market of cultivated meat and that an outright ban on cultivated meat production and commercialization is not justified. It then illustrates how existing regulatory provisions already provide traditional foods and related industries with adequate protection from the hypothetical widespread adoption of cultivated meat.

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***Corporate Social Responsibility in the Food Sector: The Role of Soft Tools for Health Sustainability***

Consumer goods, and in particular food products, have evolved rapidly in recent years. Nowadays, nearly all food products are heavily processed and contain multiple additives. Yet consumption of some of these foods has been shown to be linked to chronic non-communicable diseases (NCDs) such as heart disease, cancer, and diabetes. Not only do these NCDs kill 41 million people each year – which corresponds to 74% of all deaths globally –, but they also have a significant socioeconomic impact. These chronic diseases “pandemic” well illustrates one of the most pressing sustainability challenges food systems are facing, including in the EU: health sustainability.

In the absence of a comprehensive binding framework at EU or international level, some risk factors for NCDs, such as unbalanced foods, are increasingly targeted by national legislation. Yet while binding legal action has been proven to be effective to fight the ongoing NDC public health crisis, challenges remain. In this context, voluntary measures and other soft instruments affecting consumer goods can advance public health while avoiding the tension between state regulation and the

fundamental rights and liberties of individuals and businesses. For instance, promoting corporate social responsibility (CSR) in the areas of food and health can allow the food manufacturing industry to shape and make commitments that can be beneficial for both their public image and the health of the population. CSR instruments can thus help businesses to achieve sustainability standards, while also contributing to the companies' welfare.

Against this background, the present paper explores the possibility of using CSR nonbinding tools to tackle unhealthy foods overconsumption. Such instruments can take the form of voluntary industry measures and other soft tools, including third-party certifications, labels, and non-financial reporting possibilities for large corporations active in the food and beverages sector. This paper uses sugar as a case study and discusses the opportunities and challenges posed by nonbinding tools tackling sugary foods and beverages, as well as the foundations underlying their use. Finally, the roles of the state and private companies and their cooperation through partnerships in preventing NCDs are also considered.

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**Promoting Sustainability through Labelling: A Comparative Law Analysis**

At the global level, food governance has entered a new phase. Indeed, the interdependence of human, animal and environmental health, which the Food and Agriculture Organization of the United Nations (FAO) summarised more than a decade ago with the "One Health" approach—and which it considers strategic for achieving the Sustainable Development Goals (SDGs)—has become a global political priority.

At the European level, ever since the "Farm to Fork" strategy was launched in May 2020, the European Commission has been committed to transitioning the EU food system so that the entire food chain has a neutral or positive environmental impact, while also ensuring food security, nutrition and public health. In this context, the Commission proposed a food sustainability labelling framework in the EU to empower consumers to make informed and sustainable food choices. However, beyond the announcements expressed in the proposed framework, the entire food labelling initiative is still pending, and the relevant proposals have yet to be submitted. At the same time, several national initiatives have been launched to communicate food sustainability to consumers.

This presentation will focus on several critical issues and conflicting strategies between general principles, between legal systems and between private subjects and businesses with regard to recent informational tools that have been designed to inform consumers about the environmental and social sustainability of food products.

The following aspects and related issues will be discussed in this presentation:

- the multi-level implementation of the "One Health" approach, with particular reference to consumer information;
- the main labelling frameworks being deployed at national levels to communicate sustainability;
- the main critical aspects of these means from a regulatory point of view, analysing the roles of the different actors involved.

In its conclusions, the presentation will make a number of proposals which will address:

- the need to confront the gaps created by incomplete and ineffective regulatory measures in the food sector;
- the prospect of ending the proliferation of existing national standards and labelling frameworks;
- the objective of developing sufficiently flexible and reliable algorithms to ensure both maximum labelling accuracy and consumer involvement in order to achieve the objectives of the "One Health" approach.

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### **Legal and factual implications of Plant Variety Rights on agrifood sustainability**

Plant Variety Rights (PVRs), introduced by the UPOV Convention (1961) as a sui generis form of Intellectual Property, have significantly impacted access, use, and commercial exploitation of agricultural production's primary factors, regardless of breeding methods. Distinguished from more established Intellectual Property Rights (IPRs) like patents, PVRs are characterized by principles such as independency, breeder exemption, farmer privilege, and the cascade principle. These features aim to encourage horticultural advancement and the availability of improved varieties to farmers and growers. However, the interpretation of key legal aspects that define and limit PVRs' scope and application has presented challenges. The interplay between PVRs and EU agricultural sustainability policies has been underscored by the 2022 EU study on the Community Plant Variety Rights system's (CPVR) economic and environmental impact, a collaborative effort by the CPVO and EUIPO. The European Court of Justice (EUCJ), with exclusive jurisdiction over interpreting EC Council Regulation N. 2100/94, which implements the UPOV 1991 Convention in the EU, has clarified legal uncertainties with seminal judgments. These include defining the terms of propagating and harvested material (*Nadorcott*), applying the exhaustion principle (*Kanzi-Greenstar*), and determining damages and claims entitlement for PVR holders (*KWS Meridian*), thereby highlighting PVRs' "exceptions and limitations" as crucial for public order. Following EUCJ's lead, UPOV is to revise its "Explanatory Notes on Propagating Material" and commissioned a study on "Breeder's Right Scope" and its "Exhaustion," focusing on relevant UPOV member court cases



under the 1991 Act. This paper will summarize recent EU and national case-law developments, exploring the nuanced balance between PVR enforcement and agricultural production safeguarding, with a specific focus on the consequences and relationship between PVR protection and sustainability profiles, as highlighted by European and national Jurisprudence.

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**Driving sustainable innovation in plant reproductive material: rules and perspectives**

The presentation illustrates the relationship between Community plant variety protection (governed by Council Regulation (EC) No 2100/94 of 27 July 1994) and the laws relating to the marketing of seeds and other plant reproductive material (briefly, PRM legislation), and their role in driving sustainable innovation in this field. To this end, the discussion addresses key provisions of the two legal frameworks, outlines the common ground and interactions, and explores future scenarios, especially in light of the recent legislative proposal of the Commission to amend the PRM legislation. Seeds and other plant reproductive material of plant varieties are strategically important in the EU for different reasons: in terms of agricultural production, food security and safety, but also for the sustainability of the agrifood system. This is why sustainability should be addressed following a “seed to fork” approach, which takes into account this initial link in the agrifood chain, exploring how the law can encourage and drive the development of new sustainable plant varieties. On 5 July 2023 the Commission released the legislative proposal on the production and marketing of plant reproductive material in the Union, which aims – amongst other things – to ensure competitiveness for operators across the EU, reduce administrative burden, support innovation and contribute to addressing sustainability challenges. This proposal does not affect EU plant variety protection, which has the specific purpose to promote plant breeding, but it does strengthen the relationship between IP rights on plant varieties and the laws governing the marketing of seeds and other plant reproductive material (PRM legislation), for example by promoting the breeding of new sustainable plant varieties. The purpose of this discussion is to show that the EU plant variety protection and the PRM legislation have a strong relationship, and when sustainability finds a place in the PRM legislation, it interacts with plant variety protection and drives innovation in plant breeding.

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## **They can't keep getting away with it! – A proposal for moving from voluntary commitments to due diligence-based accountability for food waste reduction in the retail sector**

Located at the interface between consumers and the rest of the chain, retailers strategically leverage their understanding of consumer preferences to establish dominance and influence in global food supply chains. In Europe, retail corporations are able to employ private safety and quality standards to dictate the characteristics of food products, allowing only the most perfect items to enter supermarkets, leaving 'imperfect' foods as surplus or waste with upstream actors and at times, with consumers.

Despite appearing less culpable in global food waste statistics, retailers indirectly contribute to the issue in multiple ways. Yet, food chain actors affected by this struggle to address retail's contribution to the issue due to skewed power dynamics. Some retailers invest in Corporate Social Responsibility (CSR) initiatives, focusing narrowly on internal waste volumes and employing ad hoc solutions like food donations to charities. However, given that CSR strategies are deeply rooted in corporate volunteerism, food waste reduction competes with several other topical issues for a place on retailer's CSR agendas.

My presentation critiques CSR strategies as the retail sector's go-to solution for food waste reduction and proposes an accountability-based approach in its stead. I argue that by enabling chronic overproduction, and consequently the removal of surplus food from food supply chains, retail corporations contribute to the unfair distribution and overexploitation of food resources, which hinders the right to food. Drawing on the United Nations Guiding Principles on Business and Human Rights (UNGPs), I posit that retailers should tackle food waste as a right to food issue in order to meet their existing and future responsibilities to not obstruct the fulfilment of human rights through their operations. Based on Pillar II of the UNGPs, I propose a five-step accountability framework targeting food waste. Unlike the CSR-adjacent approach of voluntary agreements, this framework is centred around retailers being answerable to relevant stakeholders, supply chain partners, and state actors regarding their efforts to reduce food waste. In contrast to the fragmented and discretionary form of involvement promoted by voluntary agreements, this framework charts a coherent trajectory that harmonises the ambitions of sustainable development, human rights, and ethical business practices.

Following the presentation, I hope to invite members of the audience to discuss the feasibility of the proposed approach, its alignment with upcoming EU legislation on Corporate Sustainability Due Diligence, and its relevance to broader conversations about corporate accountability for environmental issues.