SAVING THE HARVEST: LEGAL FRAMEWORKS TO TACKLE GLOBAL FOOD LOSS AND WASTE

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SUMMARY: ***1. Introduction: the extension of the phenomenon of food waste and loss (FWL). – 2. Definition and key concepts. – 3. Development goals and international legal frameworks. – 4. Policy models to tackle FWL. – 4.1. The punitive model. – 4.2. The Incentivizing Model. - 5. Legal obstacles to the optimal use of food. – 5.1. Food donations and legal liability. – 5.2. Food conversion into animal feed. – 5.3. Date marking and consumer education. – 5.4. Food safety rules in the context of food donations. - 6. Transparency, non-financial reporting and reputational incentives. – 7. Future challenges to combat FWL and possible legal avenues. – 7.1. Dynamic shelf-life and innovative packaging. – 7.2. Improvement of supply chain conditions. – 7.3. Adopting mandatory reporting standards. – 7.4. Influencer Communication: Curbing Harmful Messaging and Encouraging Responsible Practices. - 8. Conclusion.***

ABSTRACT. Food loss and waste (FLW) is a critical global challenge impacting food security, environmental sustainability, and human rights. Despite sufficient global production, widespread hunger persists while over one billion tons of food are wasted annually. This article examines international and domestic legal frameworks addressing FLW, primarily focusing on the European Union and the United States. After clarifying the concepts of food loss, food waste, and surplus food within the context of the right to food and UN SDG 12.3, the study analyzes three primary regulatory models: punitive measures, incentive-based frameworks, and public-private partnerships. Through comparative case studies, it explores how jurisdictions blend these approaches and examines key legal barriers to food optimization, including donation liability, animal feed regulations, date labeling confusion, and safety rules. Additionally, the paper assesses the impact of corporate transparency, sustainability reporting, and environmental marketing claims. Finally, it addresses emerging challenges and opportunities, such as intelligent packaging, AI-driven supply chains, and influencer marketing regulation. Ultimately, the article argues that effective FLW reduction requires a holistic legal strategy combining regulatory innovation, stakeholder collaboration, consumer education, and adaptive governance.

Lo spreco alimentare rappresenta una sfida globale cruciale, con un forte impatto sulla sicurezza alimentare, la sostenibilità ambientale e i diritti umani. Nonostante la produzione mondiale sia sufficiente a sfamare la popolazione, la fame rimane diffusa, mentre ogni anno si spreca oltre un miliardo di tonnellate di cibo. Questo articolo esamina i modelli giuridici internazionali e nazionali sviluppati per contrastare il fenomeno, concentrandosi principalmente sull'Unione Europea e sugli Stati Uniti. Dopo aver chiarito i concetti di perdita alimentare, spreco alimentare e cibo in eccedenza nel contesto del diritto al cibo e dell'SDG 12.3 delle Nazioni Unite, lo studio analizza tre modelli normativi principali: misure punitive, modelli basati su incentivi e partenariati pubblico-privati. Attraverso un approccio compa-

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rative a diversi casi di studio, l'articolo esplora il modo in cui le diverse giurisdizioni combinano questi approcci ed esamina le principali barriere legali all'ottimizzazione della filiera alimentare, tra cui la responsabilità civile legata alle donazioni di cibo, le normative sui mangimi animali, la confusione dei consumatori sull'etichettatura della data di scadenza e le norme di sicurezza che influenzano un effficiente uso del cibo. Inoltre, viene valutato l'impatto della trasparenza aziendale, della rendicontazione di sostenibilità e dei claim di marketing ambientale. Infine, il testo affronta le sfide e le opportunità emergenti, come gli imballaggi intelligenti, le catene di approvvigionamento guidate dall'IA e la regolamentazione dell'influencer marketing. In conclusione, l'articolo sostiene che una riduzione efficace dello spreco alimentare richieda una strategia legale olistica che combini innovazione normativa, collaborazione tra i diversi soggetti della filiera, educazione dei consumatori e meccanismi di governance dinamici.

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1. Introduction: the extension of the phenomenon of food waste and loss (FWL).

In a world where tons of food are discarded daily, the stark reality remains: between 638 and 720 million people endure hunger in 2024, and among children aged 6 to 23 months only one third enjoyed dietary diversity[1].

Food loss and waste (FWL) represent a global challenge, with over 1 billion tons of food discarded annually: 60% by households, 27% by food services, and 12% by retailers. This inefficiency contributes to 8–10% of global greenhouse gas emissions and undermines food security for over 783 million people[2].

At the household level, consumers account for most of the food waste, contributing approximately 60% of the total. The food service and retail sectors are responsible for an additional 27% and 12%, respectively (highlighting the systemic nature of inefficiencies across the food supply chain)[3].

From an environmental standpoint, addressing food waste is a critical component of climate mitigation efforts, given that discarded food accounts for an estimated 8–10% of global greenhouse gas emissions[4]. As highlighted by the United Nations Environment Programme (UNEP), food waste is a pervasive issue affecting both high- and low-income countries, with no significant disparities in its prevalence[5].

This contribution does not seek to provide an exhaustive analysis of all legal issues surrounding food waste and loss (FWL). Rather, it offers a structured overview of the principal legal challenges associated with the phenomenon, supported by selected comparative examples that illustrate the diversity of regulatory approaches adopted across jurisdictions (with a specific focus on the EU and US).

Section 2 introduces key concepts and outlines the international obligations relevant to FWL. Section 3 analyzes the existing international legal architecture governing food loss and waste. Section 4 identifies legal barriers that hinder the optimal use of food, while Section 6 highlights unresolved legal challenges and proposes policy recommendations. The article concludes in Section 7 with reflections on future directions for legal reform and governance.

[1] FAO et al., *The State of Food Security and Nutrition in The World*, 2025, xii, available at: https://openknowledge.fao.org/server/api/core/bitstreams/e612e779-ec47-44c2-a3e0-499569c3422d/content.

[2] UNITED NATIONS ENVIRONMENT PROGRAMME, *Think Eat Save Tracking Progress to Halve Global Food Waste*, 2024, available at https://www.unep.org/resources/publication/food-waste-index-report-2024, xi.

[3] *Id, xii.*

[4] *Ibidem.*

[5] *Id, xiv.*

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2. Definition and key concepts

A central debate in legal scholarship concerns the definition of the phenomenon. At the international level, the Food and Agriculture Organization and the United Nations Environment Programme have developed two distinct concepts: food waste and food loss. These definitions are constantly used at the international level, although most of the time "waste" and "loss" are used as endyades.

The FAO defines Food Loss as "the decrease in edible food mass throughout the part of the supply chain that specifically leads to edible food for human consumption. Food losses take place at production, post-harvest and processing stages in the food supply chain"[6].

Food loss primarily occurs in upstream supply chain stages due to inefficient farming practices, poor post-harvest handling, and inadequate storage (especially where temperature control is lacking). Transportation delays and weak cold chain logistics further accelerate spoilage. While manufacturers implement quality controls, their contribution to total food loss remains minimal[7].

According to UNEP, "food waste" is "food and the associated inedible parts removed from the human food supply chain in the following three sectors: retail, food service and households"[8].

In addition to the concepts of food loss and food waste, the European Union has introduced the notion of "surplus food" in the context of food donation. This term refers to food products, ingredients, or partly formulated items that become excess at any stage of the production and distribution chain. Surplus food may be redistributed for human consumption, provided it complies with all relevant food safety and consumer information regulations[9].

"Removed from the human food supply chain" means one of the following end destinations: landfill, controlled combustion, sewer, litter/discards/refuse, co/anaerobic digestion, compost/aerobic digestion or land application[10].

A key conceptual framework in addressing food waste and loss (FWL) is the "waste hierarchy", which ranks intervention strategies according to their environmental and social desirability. At its apex are prevention and the optimization of food use, while disposal represents the least preferred option.

[6] J. GUSTAVSSON ET AL., *Global Food Losses and Food Waste: Extent, Causes and Prevention*, in *International Congress: Save Food!*, Congress Proceedings of Düsseldorf 16-17.5.2011, Düsseldorf, 2011, 2.

[7] V. PASARÍN E T. VUORI, *Enabling a Legal Environment for the Prevention and Reduction of Food Loss and Waste*, *Legal Brief 9*, ROMA, 2022 available at: https://openknowledge.fao.org/server/api/core/bitstreams/d00567a4-e47e-4814-bca7-75123709bbf2/content.

[8] UNITED NATIONS ENVIRONMENT PROGRAMME, *supra* note 1, xv.

[9] EUROPEAN COMMISSION, *Commission Notice – EU Guidelines on Food Donation (2017/C 361/01)*, *Official Journal of the European Union*, C 361, 25 October 2017, 1–29.

[10] J. VON BRAUN, M. SANCHÉZ SORONDO E R. STEINER, *Reduction of Food Loss and Waste: The Challenges and Conclusions for Actions*, in J. VON BRAUN, K. AFSANA, L. O. FRESCO E R. STEINER (eds.), *Science and Innovations for Food Systems Transformation*, Springer, Cham, 2023, 569 ss

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Legal and policy efforts should prioritize exhausting all viable avenues for food utilization before resorting to disposal. This approach has been embedded for example in the EU Waste Directive, that includes provision to combat FWL.

3. Development goals and international legal frameworks

Having defined the key concepts, we now turn to the international legal obligations governing FWL. The right to food is firmly embedded in international human rights law, reflected across a range of foundational legal instruments that collectively affirm access to adequate nutrition as a core component of human dignity and well-being.

The right to food is enshrined in international human rights law, notably in the Universal Declaration of Human Rights[11], International Covenant on Economic, Social and Cultural Rights (1966)[12], and other core treaties protecting children[13], women[14] and persons with disabilities[15].

However, it was not until 2012, with the United Nation Conference on Sustainable Development and the consequent adoption of the Sustainable Development Goals (SDGs)[16], that the phenomenon of FWL gained international legal recognition. The 2030 Agenda for Sustainable Development includes SDG 12.3 which calls UN member countries to "By 2030, halve per capita global food waste at the retail and consumer levels, and reducing food losses along production and supply chains, including post-harvest losses"[17]. Under the SDG, food loss reduction was entrusted FAO and food waste reduction to UNEP recognizing the two UN agencies as joint custodian for the goal. FAO oversees Indicator 12.3.1(a) (i.e. Food Loss Index) and UNEP oversees Indicator 12.3.1(b) (i.e. Food Waste Index).

Following the adoption of the goals, a debate emerged among observers regarding the scope of the numerical target. Specifically, questions were raised as to whether the 50% reduction applied solely to food waste, as explicitly stated, or also encompassed food loss, which is mentioned without a quantified benchmark. In response, Champion 12.3, a multi-stakeholder coalition comprising representatives from governments, businesses, international organizations, research institutions, farmer groups, and civil society, intervened to clarify the interpretation. On behalf of its members, the coalition affirmed that the 50% reduction target should be understood to apply

[11] Art. 25, § 1, Universal Declaration of Human Rights.
[12] art. 11, §§ 1-2, International Covenant on Economic, Social and Cultural Rights.
[13] art. 24, § 2 lett. c, Convention on the Rights of the Child.
[14] art. 12, § 2, Convention on the Elimination of All Forms of Discrimination Against Women.
[15] art. 28, § 1, Convention on the Rights of Persons with Disabilities,.
[16] Transforming our world: the 2030 Agenda for Sustainable Development, G.A. Res. 70/1, U.N. Doc. A/RES/70/1 (Oct. 21, 2015).
[17] *Ibidem*.

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equally to food loss, thereby reinforcing a comprehensive approach to food system efficiency and sustainability[18].

An early interpretative issue addressed by Champions 12.3 concerned whether inedible parts of food should be included within the scope of the target. To illustrate, consider an apple: the pulp is edible, whereas the core, seeds, and stalk are inedible components. Champions 12.3 proposed that FLW should encompass these inedible parts, emphasizing that the objective falls under the broader framework of sustainability goals (SDG 12) rather than food security (SDG 2). This interpretation also facilitates reporting, as collecting granular data on inedible fractions is highly complex, and cultural food practices further complicate definitions of edibility. For example, chicken feet are regarded as a delicacy in many Asian countries but are typically discarded in Europe.

Finally, it is worth noting that the European Union, by amending the Waste Framework Directive, has recently established binding internal targets requiring Member States to reduce food waste and loss (FWL) by 10% in processing and manufacturing, and by 30% per capita at the retail and consumption stages (including restaurants, food services, and households) by 2030[19].

4. Policy models to tackle FWL

While the relevant development goal sets a clear target for reducing FWL, it does not prescribe the legal or policy instruments through which countries must achieve this objective[20]. This regulatory discretion has led to a diversity of national approaches. For analytical purposes, we argue that these approaches can be categorized into three models:

- the punitive model;
- the incentive model;
- the public-private partnership model.

In practice, most national legal frameworks incorporate elements from all three models, reflecting a hybrid approach to FWL governance. Nevertheless, for the purpose of this discussion, we will examine specific legal features within selected jurisdictions that exemplify one of these models more prominently.

4.1.The Punitive Model

[18] C. HANSON AT AL., *Guidance on Interpreting Sustainable Development Goal Target 12.3 (Champions 12.3)* (2017), available at https://champions123.org/sites/default/files/2020-09/champions-12-3-guidance-on-interpreting-sdg-target-12-3.pdf.

[19] Cf. Directive (EU) 2025/1892 amending Directive 2008/98/EC on waste

[20] D. W. K. KHONG, J.H. L. GOH, *Anti-Food Waste Laws: A Comparative Analysis*, *in Proceedings of the International Conference on Law and Digitalization* (ICLD 2022) 15 (2022).

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The punitive model relies on legal sanctions to compel private actors to reduce FWL. France, Spain, Japan, and South Korea exemplify this approach through mandatory donation laws, public shaming mechanisms, and fiscal penalties.

For example, France was one of the first countries in the world to make the wasting of food a crime with Law No. 2016-138 of 11 February 2016[21] (*Loi relative à la lutte contre le gaspillage alimentaire*). The act introduced obligations for large food retailers (>400 sqm) to partner with a charitable organization to donate unsold food and prohibited the destruction of such food. Violations can lead to fines up to €75.000 and, in some cases, imprisonment for up to two years. This law was later reinforced by Ordinance No. 2019-1069 of 21 October 2019 and Law No. 2020-105 of 10 February 2020 (*Loi relative à la lutte contre le gaspillage et à l'économie circulaire*)[22], which extended obligations (preparing more than 3000 meals a day) and the food industry (whose annual turnover exceeds €50 million.

Some authors have observed that, despite the law's severe wording (including the possibility of imprisonment), its limited scope (applying only to large retailers with more than 400 m² of sales area) and the tendency for agreements with charities to become a mere procedural formality may significantly undermine its effectiveness. According to Bodiguel, this made the law just a formal requirement, without inducing real changes in the private actors' behaviors[23]. Mourad notes that, despite strong legal language, the law still relies mostly on voluntary commitments[24].

Following the French example, also Spain passed a law Law 1/2025 of April 1, 2025 (*Ley 1/2025, de prevención de las pérdidas y el desperdicio alimentario*)[25], which establishes a mandatory framework to prevent and reduce FWL across the entire food supply chain. The scope of the Spanish law is larger than its French counterpart as it also addresses the hospitality and public sector[26].

Another example of punitive law, relying on name-shaming and penalties, is provided by the Japan's Food Recycling Law (2000)[27]. Japan enacted

[21] Loi n° 2016-138 du 11 février 2016 relative à la lutte contre le gaspillage alimentaire (France),

[22] Loi n° 2020-105 du 10 février 2020 relative à la lutte contre le gaspillage et à l'économie circulaire (France).

[23] LUC BODIGUEL, *French Legal Scheme on Food Waste and Agri-Food Chain* (2022), in *Journal of Rural Law*, 2022, Volume, 7/2021, p.11; See also J. SZULECKA - C. BRADSHAW - L. PRINCIPATO, *Food waste governance architectures in Europe: Actors, steering modes, and harmonization trends*, in Global Challenges, 2024, 8, n. 10, 1 ss.

[24] M. MOURAD, *Did France Really Ban Food Waste? Lessons from a Pioneering National Regulation*, in S. BUSETTI & N. PACE (eds.), *Food Loss and Waste Policy*, 109, 2022.

[25] Ley 1/2025, de prevención de las pérdidas y el desperdicio alimentario (Spain).

[26] J.A. MARTÍNEZ NAVARRO, *Las implicaciones medioambientales de los desperdicios alimentarios. A propósito de la Ley española 1/2025, del 1º de abril, de Prevención de las Pérdidas y el Desperdicio Alimentario*, in *Boletín Mexicano de Derecho Comparado*, 2026, vol. 59, n. 176, e20809; E.M. FERREIRA TELES, *Notas a la nueva Ley 1/2025, de 1 de abril, de prevención de las pérdidas y el desperdicio alimentario*, in *Actualidad Jurídica Ambiental*, 2025, n. 159, 159-180

[27] Law No. 116 of 2000, Law for Promotion of Recycling and Related Activities for the Treatment of Cyclical Food Resources (Food Recycling Law) (Japan). T. OKAYAMA E K.

the act to curb food waste and encourage recycling within the food industry. It applies primarily to large-scale food manufacturers generating over 100 tons of waste annually, requiring them to report waste volumes to local authorities. The law establishes a structured compliance framework that prioritizes corrective measures before imposing financial penalties. The enforcement mechanism follows a tiered approach: businesses first receive warnings and guidance to improve practices. Continued non-compliance can lead to public disclosure of the company's name, damaging its reputation. If violations persist, authorities may issue legally binding orders, and failure to comply with these can result in fines of up to JPY 1 million (around € 7.200)[28].

Another punitive approach relies on fiscal levies. For example, South Korea introduced the Volume-Based Food Waste Fee (VBWF) system in 2013 under the Waste Control Act[29] to curb food waste through economic incentives. The scheme requires households and businesses to pay fees proportional to the volume of food waste they generate, with the cost embedded in standardized disposal bags. This pricing mechanism encourages waste reduction and proper sorting for recycling and composting[30]. Compliance is enforced through penalties for improper practices, such as using non-standard bags or failing to separate food waste. Sanctions range from fines to other corrective measures, reinforcing the system's objective of promoting sustainable waste management. By linking disposal costs directly to waste volume, the VBWF framework fosters behavioral change and supports broader recycling goals[31].

4.2.The Incentivizing Model

Policies that rely on incentives rather than penalties or taxation aim to promote desired behaviors by rewarding specific actions. These incentives may take various legal forms, with tax deductions and credits being among the most employed.

For example, both France and Spain provide fiscal incentives for food donations. In France, tax incentives encourage food donations by both individuals and corporations. Individual donors benefit from a progressive deduction system: contributions up to €150 qualify for a 75% deduction, while amounts beyond that threshold are deductible at 30%, increasing to 35% for recurring donations over three years. Donations to organizations providing free meals enjoy a preferential rate of 75% for amounts up to €1,000. Cor-

WATANABE, *Performance of the Food Waste Recycling Law in Japan with Reference to SDG 12.3*, in *Recycling*, 2024, vol. 9, n. 1, 18.

[28] A. PARRY ET AL., *Preventing Food Waste - Case Studies of Japan and the United Kingdom* (2015), *OECD Food, Agriculture and Fisheries Papers*, No. 76, OECD Publishing, Paris available at: http://dx.doi.org/10.1787/5js4w29cf0f7-en.

[29] Waste Control Act, Act No. 4742, Dec. 31, 1994, amended by Act No. 14839, Jul. 26, 2017 (Republic of Korea).

[30] E. LEE ET AL., *The Management of Food Waste Recycling for a Sustainable Future: A Case Study on South Korea*, in *Sustainability* 2024, 16(2), 854.

[31] *Id.*

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porate donors may claim a tax credit equal to 60% of the value of donated food, as provided under Article 238 bis of the French General Tax Code[32].

Spain adopts a similar approach under Law No. 49/2002, granting tax credits to both individuals and companies that donate food. For corporations, the credit is generally 35% of the net book value of donated goods, rising to 40% when donations are made to the same entity for three consecutive years. Additionally, Spain, like other EU Member States, applies a zero VAT rate to in-kind donations, including food donations to non-profit organizations[33]. These fiscal measures aim to incentivize sustained contributions to food redistribution initiatives, reinforcing the legal framework for combating food waste[34].

Public procurement is also considered an important avenue to provide positive incentives. At the EU level, for example, the Green Public Procurement (GPP) Criteria provide voluntary guidelines for public authorities to integrate sustainability into procurement processes[35]. These criteria aim to reduce environmental impact in the acquisition of goods, services, and works, and include sector-specific provisions for food, catering, and vending services. Their overarching goal is to encourage environmentally responsible practices through procurement choices[36].

For food-related services, the GPP Criteria recommend public administrations to prefer vendors that actively implement measures to prevent and manage food waste. Preferred suppliers are those with a formal waste prevention plan, including portion control and menu planning, as well as systems for redistributing surplus food to charities or food banks. Additional requirements include proper sorting and disposal of food waste and staff training on waste reduction techniques, reinforcing the role of procurement in advancing circular economy objectives[37].

4.3.The Public-Private Partnership Models

[32] S. BAGLIONI ET AL., *Public Policy Interventions in Surplus Food Recovery in France, Germany, Italy and Spain*, in *Foodsaving* in *Europe* 37 (2017). M. MOURAD, *France moves toward a national policy against food waste, New York, Natural Resources Defense Council*, 2015 available at https://www.nrdc.org/sites/default/files/france-food-waste-policy-report.pdf.

[33] S. ARANA LANDÍN, *Tax measures to reduce food losses and waste in the United States and the European Union: a comparative analysis*, in *REVESCO. Revista de Estudios Cooperativos*, 2024, 146, 1, 13.

[34] *S. BAGLIONI et al., Public Policy Interventions, cit.*38.

[35] EUROPEAN COMMISSION, *Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee on Public Procurement for a Better Environment*, COM(2008) 400 final, 16 July 2008.

[36] H. SCHEBESTA, *Revision of the EU Green Public Procurement Criteria for Food Procurement and Catering Services – Certification Schemes as the Main Determinant for Public Sustainable Food Purchases?*, in *European Journal of Risk Regulation,* 9, 316 (2018).

[37] A. BOYANO ET AL., *EU GPP Criteria for Food Procurement, Catering Services and Vending Machines Final Technical Report,* 2019, available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC118360.

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Up to this point, policy models have typically involved significant control or participation by the public sector. In recent years, alternative models introduced by the private sector view public administration as a facilitator of a supportive framework.

According to the literature, voluntary agreements (VAs) that involve collaboration between the public and private sectors have proven effective in reducing FWL[38].

For voluntary agreements (VAs) to deliver meaningful outcomes, several foundational elements are essential:

- Defined governance and accountability: VAs must operate under a clear leadership structure (whether public or private) with transparent roles and an efficient decision-making framework.
- Robust data management and evaluation: Participants should agree on standardized reporting protocols and consistent methodologies for data collection and performance measurement.

Sustainable financial support: Long-term success depends on adequate funding and investment, with public initiatives potentially providing complementary assistance[39].

Typically, sector-specific initiatives involve actors positioned at the same stage of the food supply chain.

A case in point is provided by Norway, whose progress in cutting food waste has been remarkable although a law was only passed in 2025[40]. In 2017, the five ministries of the Norwegian Government signed a voluntary agreement with 12 major food industry organizations, whereby the food industry would commit to adopt FWL reduction targets of 15% by 2020 and 30% by 2025, applying across the entire food value chain, from primary production to retail and hospitality[41]. The agreement established a collaborative governance model between public authorities and private actors, requiring systematic data collection and reporting, and promoting measures such as improved production planning, redistribution of surplus food, and consumer education[42]. Under the Agreement the Governance was entrusted to the Ministry of Climate and Environment, with progress monitored through periodic evaluations to ensure transparency and accountability[43].

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[38] EUROPEAN COMMISSION: DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY, *Reducing Food Loss and Waste: Examples of Voluntary Agreements and Other Forms of Collaborations across Europe Deliverable of the EU Platform on Food Losses and Food Waste*, 2024, available at https://op.europa.eu/en/publication-detail/-/publication/3803332e-2d1d-11ef-a61b-01aa75ed71a1/language-en.

[39] *Id.*

[40] J. SZULECKA, N. STRØM-ANDERSEN, *Norway's Food Waste Reduction Governance: From Industry Self-Regulation to Governmental Regulation?*, in *Scandinavian Political Studies*, 4586, 2022.

[41] *Industry Agreement on Reduction of Food Waste of 2017* available at: https://www.regjeringen.no/contentassets/1c911e254aa0470692bc311789a8f1cd/matsvinnavtale.pdf.

[42] J. SZULECKA, C. BRADSHAW E L. PRINCIPATO, *Food Waste Governance Architectures in Europe: Actors, Steering Modes, and Harmonization Trends*, in *Glob Chall.*, 2024, 8, 11, 2300265

[43] *Industry Agreement on Reduction of Food Waste of 2017, op. cit., 3*

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5. Legal obstacles to the optimal use of food

As shown above, countries use a range of measures to address the issue of FWL. From the perspective of private actors, there are various legal provisions that may limit the ability of private parties to use food efficiently and reduce FWL. The following section outlines the primary legal barriers and describes approaches taken by different countries to address them.

5.1.Food donations and legal liability

The subject of food donations, legal liability, and protection is a frequently discussed area within the context of FLW and has generated extensive scholarly research.

For example, the Center for Health Law and Policy Innovation at the Harvard Law School has established a flagship legal initiative focused on mapping food donation laws globally and advocating for the adoption of such legislation in countries where it is currently absent[44].

The US Bill Emerson Good Samaritan Food Donation Act (Good Samaritan Act)[45], enacted by US Congress in 1996 on the model provided by several State statutory provisions represents a reference point for most countries[46].

Scholars generally agree that this law functions more as a psychological incentive than a substantive legal safeguard, as in in nearly three decades of its existence (alongside similar state-level provisions) there is no documented case of a company being sued over donated food and invoking these laws in its defense[47].

Some authors have gone so far as to suggest that a Good Samaritan Law may be completely unnecessary and simple guidance for food donors on rules applying to the donation would suffice to incentivize donations, because strict liability rules aside, the plaintiff would still have to demonstrate which specific food was the source of the injury and this is quite challenging in the case of donated food[48].

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[44] CENTER FOR HEALTH LAW AND POLICY INNOVATION, *Food Waste and Recovery*, 2025, available at: https://chlpi.org/projects-and-resources/projects/food-waste-and-recovery.

[45] Bill Emerson Good Samaritan Food Donation Act, Pub. L. No. 104-210, 110 Stat. 3009 (1996).

[46] S. H. VAN ZUIDEN, *The Good Food Fight for Good Samaritans: The History of Alleviating Liability and Equalizing Tax Incentives for Food Donors* in *Drake Journal of Agricultural Law*, 17, 2012, 237.

[47] E M BROAD LIEB, A. ARDURA, *History and Legacy of the U.S. Good Samaritan Food Donation Law* in S. BUSETTI, N. PACE (eds.), *Food Loss and Waste Policy: From Theory to Practice,* Routledge, Abingdon, 2022; A. COHEN, *Ten Years of Leftovers with Many Hungry Still Left Over: A Decade of Donations under the Bill Emerson Good Samaritan Food Donation Act*, 5 *Seattle Journal for Social Justice*, 2006, 23; J. HALEY, *The Legal Guide To The Bill Emerson Good Samaritan Food Donation Act*, 2013, available at: https://law.uark.edu/documents/2013/06/Legal-Guide-to-the-BEA-Haley-Final.pdf.

[48] C. BRADSHAW, *Good Samaritan Laws and Surplus Food Redistribution - a Solution in Need of a Problem?*, 2024, available at: https://ssrn.com/abstract=4863037.

On the other hand, several scholars have argued that the Act is outdated and that it would require urgent amendments. For example, Munger argues that the ambiguous language of the Act and incomplete liability protections have failed to sufficiently incentivize food donations or safeguard recipients. The author contends that the Act's lack of clear definitions for key terms such as "good faith," "food quality," and "recondition" leaves potential donors uncertain about the scope of liability protection, thereby perpetuating fears of legal exposure. Furthermore, the Act's unclear pre-emption of state law results in a patchwork of standards, complicating compliance for donors operating across jurisdictions. The liability shield provided by the Act is also criticized for being overly broad (extending to both civil and criminal negligence) while failing to comprehensively protect all parties and activities within the food donation chain, such as landowners and volunteers[49].

However, the debate about the effectiveness of the Act is open. Contrary to Munger's argument, Aiken and colleagues have shown that state laws offering protections beyond those provided by the Bill Emerson Good Samaritan Act and helping to resolve legal ambiguities are more effective in encouraging food donations[50].

Several countries have followed suit according to the US example. For example, Italy introduced, Law No. 166/2016[51] to promote the donation of surplus food while addressing legal concerns for businesses. The law provides legal safeguards for donors acting in good faith, exempting them from civil and criminal liability if the donated food is safe for consumption at the time of donation. The Italian law goes further than the US counterpart by simplifying administrative procedures, such as waiving official documentation requirements for donations under €15.000 or involving perishable goods, thereby reducing bureaucratic barriers and fostering greater participation from food businesses in redistribution efforts[52].

Spanish Law 1/2025 basically mimics the provision of the Italian law, but it also makes contractual provisions that prohibit food donation legally null and void.

5.2.Food conversion into animal feed

Although certain food products may no longer meet standards for human consumption, they can still be considered safe for use in animal feed. Nonetheless, food safety and feed safety regulations operate under distinct legal frameworks. Not all substances suitable for human diets are appropriate for

[49] S. MUNGER, *Bill Emerson's Makeover: Reforming the Bill Emerson Good Samaritan Food Donation Act*, 19 *VERMONT JOURNAL OF ENVIRONMENTAL LAW*, 2018, 19.
[50] J. A. AITKEN ET AL., *Initial Assessment of the Efficacy of Food Recovery Policies in US States for Increasing Food Donations and Reducing Waste*, 176 *Waste Management*, 2024,149.
[51] Law No. 166 of 19 August 2016 on the donation and distribution of food and pharmaceutical products for social solidarity purposes (Italy).
[52] L. COSTANTINO, Strumenti giuridici di prevenzione e contrasto dello spreco alimentare nell'esperienza giuridica italiana, in Riv. dir. agr., 2024, n. 1, 1 ss.

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animal nutrition, and feed and pet food manufacturers are subject to specific regulatory requirements. In response to the Bovine Spongiform Encephalopathy (BSE) outbreak, many jurisdictions enacted legislation aimed at preventing transmission. These laws mandate that certain animal by-products and ingredients derived from animals undergo prescribed treatments (such as heat processing) to neutralize prions. In some instances, these requirements also extend to the disposal of animal by-products[53].

For example, according to the Guidelines[54] issued by the European Commission, food being reconverted into feed must comply with both the General Food Law (i.e. Regulation (EC) No 178/2002)[55], the Hygiene Package[56] and Regulation (EC) No 183/2005[57], which lays down requirements for feed hygiene. Under European Union law, surplus food may be directly repurposed as animal feed provided it contains no ingredients of animal origin. Where such ingredients are present, the material must first comply with the requirements set out in the Animal By-Products Regulation and the legislation governing Transmissible Spongiform Encephalopathies (TSE) prior to its conversion into feed.

In addition to regulatory requirements concerning food and feed safety, manufacturers may be subject to distinct authorization and registration procedures depending on whether they produce food or animal feed. In certain jurisdictions, food producers are prohibited from supplying ingredients for use in animal feed without obtaining the appropriate registrations. For example, Article 3 of Regulation (EC) No 178/2002 provides different definition for "food business operator" and for "feed business operator", thereby requiring a double registration and compliance with the respective hygiene requirements. To this extent the Guidelines of the European Commission suggest to Food Business Operators to deliver surplus food as-is to the recipient Feed Business Operator, who will convert it into animal feed.

Additionally, not all substances approved for human consumption are suitable for animal diets. For instance, some sugar alcohols used as sweeteners for humans detrimental for dogs. In the US, animal feed and pet food are both regulated at the federal level by FDA and the States. The Association of American Feed Control Officials (AAFCO) has for several years acted as the most authoritative official US veterinarian body recommending the adoption of both federal and state rules. Historically, AAFCO operated under a Memorandum of Understanding with FDA, under which AAFCO examined ingredients for feed and pet food to be authorized by FDA (i.e. Feed Ingredient Definition) (FDA, 2024)[58]. To facilitate surplus food reconversion, AAFCO included in the "Restaurant Food Waste" and "Recovered Re-

[53] G. C. SHURSON, E. S. DIERENFELD, D. ZHENGXIA, *Rules Are Meant to Be Broken – Rethinking the Regulations on the Use of Food Waste as Animal Feed*, 199 *Resources, Conservation and Recycling*, 2023, 107273.
[54] Commission Notice 2018/C 133/02 of 16 April 2018 - Guidelines for the feed use of food no longer intended for human consumption, [2018] OJ C 133/2.
[55] Regulation (EC) No 178/2002.
[56] Regulation (EC) No 852/2004.
[57] Regulation (EC) No 183/2005.
[58] Although, the MoU was discontinued in 2024, AAFCO determination have been retained.

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tail Food" as animal feed ingredient, however, this definition does not apply to pet food[59].

5.3.Date marking and consumer education

As noted, most of the food waste occurs at the household level. However, restaurants also contribute significantly, as patrons often order more food than they can consume. This behavior stems from multiple factors, with misunderstandings about date labeling and ingrained dining customs playing a particularly important role.

Scientific literature consistently demonstrates that consumers struggle to distinguish between date labels such as "best by" and "use by." The former refers to the date of minimum durability, indicating the period during which the product is expected to retain its optimal sensory qualities according to the producer's specifications. In contrast, the "use by" date pertains to food safety; consumption beyond this date may pose health risks. In the United States, date marking is generally not mandatory, except for specific categories such as infant formula (21 CFR 107.20). By contrast, the Regulation (EU) no. 1169/2011[60] requires date labelling for all food products. Although foods past their "best by" date are typically safe to consume, widespread consumer confusion often leads to premature disposal, making date label misinterpretation one of the leading drivers of household food waste[61].

Empirical research indicates that enhancing consumer comprehension of date labelling can play a critical role in mitigating household food waste. Individuals who rely on sensory evaluation (such as smell or taste) rather than strictly adhering to labeled dates, tend to discard less food unnecessarily (Toma et al., 2020). Furthermore, a significant portion of consumers exhibit limited understanding of proper storage practices and temperature control, which contributes to the accelerated deterioration of food products post-purchase[62].

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[59] ASSOCIATION OF AMERICAN CONTROL OFFICIALS, *Official Publication*, 2025, available at: https://www.aafco.org/resources/publications/.

[60] Regulation (EU) No 1169/2011.

[61] A. BADIGER ET AL., *When Considering Whether to Waste Food, Consumers Focus Attention on Food Label Dates Rather than Phrases*, 168 *Waste Management*, 2023, 230); DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY, *Market Study on Date Marking and Other Information Provided on Food and Food Waste Prevention,* 2018, available at: https://op.europa.eu/en/publication-detail/-/publication/e7be006f-0d55-11e8-966a-01aa75ed71a1/language-en; EUROPEAN COMMISSION: DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY & OPEN EVIDENCE, *Final Report - Consumer Segmentation Study on Food Waste Prevention and Date Marking*, 2025, available at: https://food.ec.europa.eu/document/download/a2fbf718-3e45-4948-84eb-7ca7e55d27e5_en?filename=fw_eu_actions_dm_sante_waste-data-segmentation_report.pdf; M. KAVANAUGH, J. J. QUINLAN, *Consumer Knowledge and Behaviors Regarding Food Date Labels and Food Waste* in 115 *Food Control*, 2020, 107285.

[62] K. SCHANES, K. DOBERNIG, B. GÖZET, *Food Waste Matters - A Systematic Review of Household Food Waste Practices and Their Policy Implications* in 182 *J Clean Prod*, 2018, 978.

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Faced with this challenge, both the US and the EU have attempted to strengthen their regulatory frameworks, but these efforts have so far yielded no tangible results.

Despite being poised to adopt improved labeling rules, the European Commission ultimately failed to do so, notwithstanding the European Court of Auditors' recommendation to improve rules (European Court of Auditors, 2024). However, the European Commission requested the European Food Safety Authority to provide clearer guidance to food business operators on the proper application of date labeling[63].

In the US, in the absence of federal regulations, the bipartisan Food Date Labeling Act of 2023 proposes a standardized dual-date labeling system: "Use By" for safety and "Best If Used By" for quality, while permitting an optional "Freeze By" date and preempting state laws that restrict the sale of products past the quality date[64]. Although, tabulated for discussion by the Committee on Agriculture, there is no set date for adoption the bill by Congress.

Several private initiatives have sought to address this regulatory gap. In Europe, for example, the "Too Good To Go" campaign (supported by numerous food manufacturers) developed standardized on-pack visuals aimed at educating consumers on date marking and discouraging the premature disposal of food that remains safe for consumption beyond the "best before" date[65].

Legal initiatives also aim at improving restaurant tenants' behaviors. For example, Spanish Law 1/2025, mandates that restaurants and catering establishments allow customers to take away uneaten food at no extra cost, except for the cost of containers. Customers must be clearly informed about this right[66]. With a more punitive animus, Anti-Food Waste Law, adopted in China in April 2021[67], aims to curb excessive food consumption and improve food security. Diners are prohibited from ordering more food than they can reasonably consume, and restaurants may impose additional charges for excessive leftovers. To avoid substantial fines, establishments must also refrain from misleading customers into overordering[68].

5.4.Food safety rules in the context of food donations

[63] K. KOUTSOUMANIS ET AL., *Guidance on Date Marking and Related Food Information: Part 1 (Date Marking)*, in *EFSA Journal*, 18, 2020, 6306.

[64] Food Date Labeling Act of 2023, H.R. 3159, 118th Cong. (2023).

[65] TOO GOOD TOO GO, *Look-Smell-Taste Labelling Initiative*, 2025, https://www.toogoodtogo.com/look-smell-taste (consulted on October 15, 2025).

[66] E. B. HEDO, *Ley 1/2025, de 1 de Abril, de Prevención de Las Pérdidas y El Desperdicio Alimentario* in *Actualidad jurídica Ambiental*, 2025, 397.

[67] Law of the People's Republic of China on Food Waste (Anti-Food Waste Law), adopted Apr. 29, 2021, Order No. 78 of the President of the PRC. T. LI, G. QIAO E N. CONG ET AL., *Understanding "Anti-Food Waste" efforts in China: a policy text analysis based on the period 2009–2021*, in *Environ Dev Sustain*, 2026, 1 ss

[68] Y. FENG, C. MAREK, J. TOSUN, *Fighting Food Waste by Law: Making Sense of the Chinese Approach*, *J Consum Policy (Dordr),* 45, 2022, 457; S. WANG, D. LIU, J. SHENG, *Prevention of Food Waste in China: Role and Impact of China's Anti-Food Waste Law* in *Foods*, 13, 2024, 3940.

Rules on food safety, although meant to protect consumers (including the recipient of donated food) may also pose a barrier to food donation. For example, some protection laws prevent the refreezing of certain foods not to deceive the consumer.

In 2017, the European Union issued the "EU Guidelines on Food Donation"[69] , which were complemented in 2021 by amendments to the hygiene package, namely Commission Regulation (EU) 2021/382[70] and Commission Delegated Regulation (EU) 2021/1374[71] to facilitate food redistribution. The Guidelines establish that, at a minimum, food business operators (FBOs) may donate food that is safe, compliant with all relevant safety standards, and fit for human consumption. They also introduce flexibility regarding food of animal origin, notably by clarifying the definition of "composite products" (which are exempt from certain animal health rules) and by allowing local distribution of regulated items. Furthermore, Regulation (EC) No 852/2004 was amended to permit the freezing of meat, thereby supporting redistribution efforts. Several Member States have operationalized these principles through national guidance, including for example Italy[72] or France[73].

In 2022, the FDA followed suit by updating its model Food Code, a non-binding regulatory framework adopted by individual states to guide domestic food safety regulations. The 2022 edition introduced a dedicated section on food donation, clarifying that food which is stored, prepared, packaged, displayed, and labeled in accordance with applicable federal and state laws may be offered for donation. The FDA further emphasized that food may always be donated, provided it remains safe and fit for human consumption[74].

6. Transparency, non-financial reporting and reputational incentives

In recent years, consumer demand for transparency regarding the environmental footprint of food products has grown significantly. Green claims have emerged as a major marketing differentiator for food manufacturers. At the same time, investors have shown increasing interest in assessing companies' environmental, social, and governance (ESG) performance. This dual pressure has prompted regulatory bodies in both the EU and the US to develop sustainability reporting standards.

[69] EUROPEAN COMMISSION, *Commission Notice,* 18.
[70] Commission Regulation (EU) 2021/382.
[71] Commission Delegated Regulation (EU) 2021/1374.
[72] MINISTERO DELLA SALUTE,L*inee guida per le donazioni alimentari a fini di solidarietà sociale*, 2012, available at: https://food.ec.europa.eu/document/download/818ec11a-0a0d-4710-8e26-854f3e5ee418_en?filename=fw_lib_italy_food-donation-guidelines_original.pdf.
[73] ANIA ET AL., *Le Guide Du Don Alimentaire*, 2022, available at: https://www.ania.net/wp-content/uploads/2022/03/Guide-Don-Alimentaire.pdf.
[74] FDA, *Food Code*, 2022, available at: https://www.fda.gov/media/164194/download.

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Lawmakers face the complex task of striking a balance between enabling companies to communicate genuine environmental benefits (thus rewarding positive externalities) and protecting consumers and investors from misleading practices. The absence of clear legal standards has facilitated "greenwashing," where companies exaggerate or falsify environmental benefits[75].

In the US, the Securities and Exchange Commission (SEC) adopted climate-related disclosure rules in 2024, requiring companies to report emissions[76]. Although these rules did not specifically address food waste loss (FWL), such waste could have been considered a source of methane emissions. However, these rules faced significant criticism and were ultimately repealed by the Republican administration in 2025[77].

Conversely, the EU has advanced its sustainability agenda through the European Green Deal and the Corporate Sustainability Reporting Directive (CSRD)[78]. While the future of these initiatives remains uncertain, the EU has already implemented European Sustainability Reporting Standards (ESRS), which include both general and sector-specific requirements[79]. These standards emphasize resource efficiency and encourage companies to minimize waste, including food waste, across their operations. Importantly, non-financial reporting under ESRS is subject to independent third-party audits, ensuring accountability. ESRS E5, titled "Resource Use and Circular Economy," addresses various aspects of resource management, including waste. Companies must disclose sector-specific waste streams and identify materials present in waste (cf. ESRS E5 no. 38).

Even without mandatory disclosure obligations, many players have voluntarily reported efforts to reduce FWL as part of their corporate social responsibility (CSR) strategies. Despite this, research suggests that mandatory disclosure requirements are more effective in driving attention to FWL within CSR frameworks[80].

For corporations, communicating progress in reducing FWL is crucial, not only to investors, but also to consumers. Yet, advertising regulations can complicate these efforts.

Corporate communication regarding progress in reducing FLW may constitute an environmental marketing claim under US law. For instance, a statement such as "our company has reduced food waste by 20%" falls within the scope of the Federal Trade Commission's Green Guides, which govern the use of environmental claims in marketing. According to 16 CFR

[75] M. Hedemann-Robinson, *Environmental Claims and the EU's Legal Response for Combating Greenwashing* in *European Energy and Environmental Law Review*, 34, 2025, 64.

[76] Securities and Exchange Commission, *The Enhancement and Standardization of Climate-Related Disclosures for Investors*, 89 Fed. Reg. 21,668 (Mar. 28, 2024).

[77] E. C. Rouen, *The SEC Eliminated Climate Rules. Other Governments Are Doing the Opposite* in *Harvard Business School - Institute for Business in Global Society* (Jul. 1, 2025), https://www.hbs.edu/bigs/federal-climate-rules (consulted on October 16 2025).

[78] Directive (EU) 2022/2464.

[79] Commission Delegated Regulation (EU) 2023/2772.

[80] G. Biggi, L. Principato, F. Castellacci, *Food Waste Reduction, Corporate Responsibility and National Policies: Evidence from Europe* in 126 British Food Journal, 2024, 470.

260.3, such claims must be truthful, not misleading, and supported by competent and reliable scientific evidence. In the case of quantified FLW reduction claims, companies must ensure that the claim is clearly defined, measurable, and substantiated. This includes specifying the baseline data, the timeframe over which the reduction occurred, and the methodology used to calculate the reduction. Absent these elements, the claim risks being deceptive under the FTC's standards. Therefore, while communicating FLW reduction can enhance transparency and consumer trust, it must be carefully framed to comply with regulatory expectations and avoid misleading representations. Similar principles would apply under the recently introduced Article 1 of the Empowering Consumers Directive (i.e. Directive EU 2024/825)[81], under which a communication a brand or a trader that "has improved over the time", could be considered an "environmental claim", thus subjecting it to the similar requirements of substantiation.

Specific rules exist for the communication of food donations in many countries. For instance, following the "Pandoro" scandal in Italy, stricter guidelines were introduced by the Advertising Authority (i.e., Autorità per le Garanzie nelle Comunicazioni) regarding influencer marketing and charitable contributions[82]. Companies claiming that a portion of proceeds supports charitable causes must provide detailed information to consumers[83]. It remains unclear whether these rules also apply to advertisements that, while not specifying monetary donations, assert that FWL associated with purchased products is donated to food banks or charities.

7. Future challenges to combat FWL and possible legal avenues

Although numerous issues related to FWL have already been addressed through legal frameworks in many countries, significant challenges persist, even within jurisdictions that boast the most advanced FWL reduction policies. In the following sections, we identify key areas where legal interventions could be further developed and integrated into national strategies. Many of these opportunities arise from the rapid evolution of technologies within the food industry, which present both novel risks and promising avenues for regulatory innovation.

7.1.Dynamic shelf-life and innovative packaging

Advancements in packaging technology have enabled the development of intelligent labels, which interact with both the atmosphere and the food con-

[81] Directive (EU) 2024/825.

[82] AUTORITÀ PER LE GARANZIE NELLE COMUNICAZIONI (AGCOM), *Allegato A alla Delibera n. 7/24/CONS*, *Linee-guida volte a garantire il rispetto delle disposizioni del Testo unico da parte degli influencer e istituzione di un apposito Tavolo tecnico* (Jan. 10, 2024), available at https://www.agcom.it/sites/default/files/migration/attachment/Allegato%2016-1-2024.pdf

[83] I DEMURO, *Trasparenza e Correttezza Dell'"influencer Marketing* in *ANALISI GIURIDICA DELL'ECONOMIA*, 2025, 9.

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tained within the package. These labels can provide consumers with real-time information about the condition of the food, including alerts regarding potentially hazardous levels of spoilage[84].

When used in conjunction with traditional date marking, intelligent labels could significantly enhance consumer understanding of food safety, particularly in cases where food may remain safe to consume beyond the indicated date[85].

The integration of artificial intelligence (AI) into household appliances presents promising opportunities for reducing food waste. Smart fridges, connected to the internet and powered by AI, can monitor the contents stored within and provide real-time information on shelf life, storage conditions, and availability. This functionality enables consumers to prioritize the consumption of items nearing expiration, avoid unnecessary purchases, and manage food stocks more efficiently. By facilitating informed decision-making, such technologies contribute meaningfully to food waste prevention and support broader sustainability goals[86].

Despite the promise of this technology, further research is needed to ensure its scalability and affordability, making it viable for widespread consumer adoption. However, it is already foreseeable that the integration of such innovations may conflict with existing date marking requirements under current EU food information legislation, which prescribes fixed formats and interpretations that may not accommodate dynamic, real-time indicators. For this reason, the EU lawmaker should revisit Regulation (EC) 1169/2011 to include smart labelling as a legally accepted meant to date-mark foods.

7.2.Improvement of supply chain conditions

Scholarship has highlighted how specific business practices may contribute to increased food waste and loss (FWL), ranging from contractual clauses in supply agreements to promotional campaigns implemented by retailers.

For example, take-back agreements foresee that the retailer may return unsold goods to the supplier, thus not bearing the cost of disposing the food. Most of times, these goods are returned close to the expiration date and end up being disposed of by the supplier. Take-back policies can vary depending on the bargaining power of the retailer, in certain circumstances, the grounds on which the goods can be returned are quite generous. As pointed out by Ericksson et al. these contractual clauses have the effect of creating

[84] S. KARANTH ET AL., *Linking Microbial Contamination to Food Spoilage and Food Waste: The Role of Smart Packaging, Spoilage Risk Assessments, and Date Labeling* in 14 *Front Microbiol*, 2023,1198124.
[85] *Id.*
[86] H. GOLSHANY ET AL., *IoT-Enabled Smart Kitchen Technologies and Their Impact on Food Storage, Preparation, and Culinary Experiences: A Systematic Review* in *Food Research International*, 2025, 116557.

negative incentives for the retailers because they do not bare consequences for the disposed goods[87].

Retailer's standards, especially for perishable goods such as produce, have also the effect of leading to increased FWL. They force producers to discharge foods, although safe and wholesome for human consumption do not meet aesthetic and qualitative requirements[88].

As in the case of the Spanish law that renders certain provisions preventing food donation null, similar legislative measures could the adopted to invalidate distribution contract clauses that contribute to increased FWL. Additionally, supplier-retailer platforms could work to develop standard terms and conditions, mindful of FWL to be roll-out to the entire food industry as a best practice.

Promotional practices between suppliers and retailers, particularly multi-buy offers such as "Buy One, Get One Free" (BOGOF), can inadvertently contribute to increased levels of food waste. These promotions often incentivize consumers to purchase quantities that exceed their actual consumption needs, leading to overstocking in household pantries and, ultimately, spoilage and disposal of unused food[89].

While the above-mentioned practices are rooted in commercial terms and may boost short-term sales, they risk undermining broader sustainability goals by encouraging inefficient consumption patterns. The legal and regulatory implications of these practices merit closer scrutiny, especially considering evolving objectives on food waste reduction and sustainable retailing.

The UK was one of the first countries to explicitly introduce a ban to these promotions pursuant to Article 5 of Food (Promotion and Placement) (England) Regulations 2021 (SI 2021/1368)[90] on the ground that they also contribute to obesity rates.

Other countries could follow suit and adopt similar restrictions also educating consumers to responsible purchasing habits.

7.3.Adopting mandatory reporting standards.

As seen, although legal mandates for ESG disclosures represent a significant step forward, their effectiveness may be undermined by the absence of a harmonized reporting methodology across all stakeholders. At the EU level, a standardized approach to reporting FWL applies exclusively to Member States. Under the newly introduced Article 9a of Directive 2008/98/EC (Waste Framework Directive)[91], EU Member States have been assigned

[87] M. ERIKSSON ET AL., *Take-Back Agreements in the Perspective of Food Waste Generation at the Supplier-Retailer Interface* in *Resour Conserv Recycl,* 122, 2017, 83

[88] B. DEVIN, C. RICHARDS, *Food Waste, Power, and Corporate Social Responsibility in the Australian Food Supply Chain* in *Journal of Business Ethics*, 150, 2018, 199.

[89] UK EUROPEAN UNION COMMITTEE, *Counting the Cost of Food Waste: EU Food Waste Prevention*, 2014, 25 available at: http://www.parliament.uk/hleu.

[90] Food (Promotion and Placement) (England) Regulations 2021, SI 2021/1368, Regulation 5, Restriction on the price promotion of specified food.

[91] Directive 2008/98/EC.

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FWL reduction targets, requiring a 10% reduction in the processing and manufacturing stages, and a 30% per capita reduction jointly across retail and consumption sectors, including restaurants, food services, and households.

To monitor progress, Member States are required to periodically submit data to the European Commission, following the methodology set out in Commission Delegated Decision (EU) 2019/1597[92]. However, to date, this methodology has already been implemented with significant inconsistencies in data reporting, raising concerns about the comparability and reliability of the submitted figures.

The lack of consistent reporting methodologies also affects private actors. In the absence of legally binding reporting standards applicable to private entities, many stakeholders have independently developed their own methodologies, leading to further fragmentation and reduced comparability across the food supply chain[93].

Notably, the Food Loss & Waste Protocol (a coalition comprising international organizations such as UNEP and FAO, alongside industry groups like The Consumer Goods Forum) has introduced the Food Loss and Waste Accounting and Reporting Standard, which serves as a voluntary common methodology for the food sector[94].

While it appears that only a small pool of companies will be covered by the CSRD directive, additional legal reflection will be needed to understand how to create a level playing field for corporations to report FWL. International non-governmental institutions, such as the International Sustainability Standards Board (ISSB) operating under the International Financial Reporting Standards (IFRS) Foundation, which has been mandated to develop a global baseline for sustainability disclosures, could play a pivotal role in advancing a standardized methodology for reporting FWL[95].

7.4. Influencer Communication: Curbing Harmful Messaging and Encouraging Responsible Practices

In the post-pandemic era, the rise of digital influencers has significantly reshaped corporate advertising strategies. As traditional media consumption declined and digital engagement surged, companies increasingly have redirected advertising budgets toward influencer-driven content[96]. This shift re-

[92] Commission Delegated Decision (EU) 2019/1597.

[93] J. GUSTAVSSON, H. BOS-BROUWERS E T. TIMMERMANS ET AL., FUSIONS *Definitional framework for food waste - full report*, *Project report FUSIONS*, 2014

[94] C. HANSON ET AL., *Food Loss and Waste Accounting and Reporting Standard (Version 1.0) (2016)* available at: https://flwprotocol.org/wp-content/uploads/2017/05/FLW_Standard_final_2016.pdf.

[95] IFRS, *International Sustainability Standards Board*, 2025, https://www.ifrs.org/groups/international-sustainability-standards-board (consulted on October 15 2025).

[96] INFLUENCER MARKETING HUB & VIRAL NATION, *The State of Influencer (2024)*, available at:

flects a broader transformation in consumer behavior, where trust, authenticity, and relatability (hallmarks of influencer marketing) have become central to brand communication[97].

The forced permanence at home during lockdowns accelerated this phenomenon increasing consumers engagement with social media, which have become the primary source of information for many consumers[98].

Literature has shown that influencers can have a negative impact on FWL, promoting excessive consumption or overordering of food[99]. On the other hand, due to the trust that they enjoy with the consumers they can also be a force for good, promoting virtuous consumption and environmental education[100].

Against this backdrop, some scholars have argued that the influencer's phenomenon in the food space requires special regulation[101].

While the FTC adopted regulation for the use of consumer's review and testimonials (16 CFR 465), these rules are silent with regards to promoting inconsiderate behavior as they focus more on the identity of the influencer.

On the other side of the Atlantic, the European Commission has initiated a public consultation on the proposed Digital Fairness Act (DFA), aiming to enhance consumer protection in the context of influencer marketing. This legislative effort recognizes that the existing Unfair Commercial Practices Directive (UCPD)[102], originally designed to address traditional forms of unfair marketing, is inadequate for regulating emerging digital advertising formats. In the domain of food marketing, the proposal specifically targets influencers who promote unhealthy dietary habits and certain food products to children, drawing on evidence presented by the European Consumer Organization[103].

The European Commission could seize this legislative opportunity to introduce targeted provisions addressing influencer-driven promotion of excessive food consumption. Such measures would serve dual objectives: advancing public health by contributing to the reduction of obesity rates, and

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https://influencermarketinghub.com/ebooks/Influencer_Marketing_Benchmark_Report_2024.pdf.

[97] Y. JOSHI ET AL., *Social Media Influencer Marketing: Foundations, Trends, and Ways Forward* in *25 Electronic Commerce Research*, 2025, 1199.

[98] *Id.*

[99] X. HUI ET AL., *Decoding Excess: The Role of Social Media Celebrities and Impression Management in Food over-Ordering in Luxury Dining* in *British Food Journal* 1 2025.

[100] Simran Verma & Deepa Kapoor, *Sustainability on the Plate: How Influencers and Social Norms Transform Food Choices*, 127 BRITISH FOOD JOURNAL 1942 (2025).

[101] L. G. VAQUÉ, *Do Food Influencer Activities Require Specific Regulation?* in *European Food and Feed Law Review*, 15, 2020,117.

[102] Directive 2005/29/EC.

[103] E. CALVERT, *Food Marketing To Children Needs Rules With Teeth - A Snapshot Report About How Self-Regulation Fails To Prevent Unhealthy Foods To Be Marketed To Children*, 2025, available at: https://www.beuc.eu/sites/default/files/publications/beuc-x-2021-084_food_marketing_to_children_needs_rules_with_teeth.pdf; EUROPEAN COMMISSION, *Commission Staff Working Document - Fitness Check of EU Consumer Law On Digital Fairness {Sec(2024) 245 Final} - {Swd(2024) 231 Final}*, 2024; M NAMYSŁOWSKA, *Editorial - Digital Fairness and the Courage to Regulate* in *Journal of European Consumer and Market Law*, 14, 2025, 133.

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supporting environmental sustainability through the mitigation of food waste.

8. Conclusion

FWL is a complex, multidimensional challenge that demands not only technical, logistical, and commercial interventions but also robust legal and regulatory solutions. It is not merely an environmental issue, it is a pressing societal concern, particularly in the context of rising food insecurity exacerbated by persistent high inflation in the post-pandemic era[104].

As demonstrated, policymakers possess a broad arsenal of tools to address FWL. However, the effectiveness of these measures hinges on close collaboration with civil society, especially food manufacturers, retailers, and consumer organizations. A bottom-up approach (anchored in inclusive stakeholder engagement, supported by framework agreements, collaborative platforms, and well-designed incentives) emerges as a particularly promising model.

Moreover, emerging technologies and digital media offer new avenues to combat FWL. Yet, to harness their full potential, these innovations must be underpinned by adaptive and forward-looking legal frameworks. For instance, the sandbox model (originally developed for digital technologies and now under discussion in the food sector) could be adapted to address food waste legislation (FWL)[105]. Selected operators, acting as trailblazers, could be authorized to conduct pilot projects within targeted retail environments, aimed at collecting empirical data on consumer responses to innovative interventions. In the domain of intelligent packaging, for example, sandbox frameworks could facilitate the controlled testing of novel materials, allowing for the assessment of consumer behavior at the household level. Incentive mechanisms may be introduced to reward those who develop virtuous models (particularly those that encourage intellectual property sharing and generate positive spill-over effects across industry). A further avenue for reform lies in the promotion of standard commercial clauses at both industry and retail levels, including the invalidation of provisions such as the retailer's right to return goods solely on the basis of aesthetic imperfections.

With progress in reducing FWL showing signs of stagnation, and with households remaining a major source of food waste, innovative strategies are urgently needed. Engaging influencers and peer networks to educate and shift consumer behavior represents one such promising path forward.

For the European Union, the establishment of competent authorities within Member States (tasked with developing strategies to combat food waste and loss (FWL) and reporting data to the European Commission) represents a critical opportunity that must not be overlooked[106]. This mandate is ex-

[104] FAO ET AL., *supra* note 2.
[105] A. MOLITORISOVÁ, K. PURNHAGEN, *Regulatory Sandboxes for Novel Foods* in *European Journal of Risk Regulation*, 2025, 1.
[106] Cf. Article 29a of Directive 2008/98/EC.

pected to reinvigorate the policy discourse on FWL and generate momentum for further regulatory reforms.

Ultimately, addressing FWL requires a holistic, legally informed, and socially inclusive strategy: one that aligns environmental sustainability with economic and social resilience.

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