Flexible Packaging Association
Connecting. Advancing. Leading.

185 Admiral Cochrane Drive
Suite 105
Annapolis, MD 21401

Tel (410) 694-0800
Fax (410) 694-0900

www.flexpack.org

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RE: Draft National Strategy to Reduce Food Loss and Waste and Recycling Organics

To Whom It May Concern:

The Flexible Packaging Association (FPA) is submitting these comments on the Biden-Harris Administration's above reference draft national strategy (herein after referred to as "Strategy").

## I. Introduction to FPA

FPA represents flexible packaging manufacturers and suppliers to the industry in the U.S. Flexible packaging represents $42.9 billion in annual sales; is the second largest, and fastest growing segment of the domestic packaging industry; and employs approximately 85,000 workers in the United States. Flexible packaging is produced from paper, plastic, film, aluminum foil, or any combination of these materials, and includes bags, pouches, labels, liners, wraps, rollstock, and other flexible products. Food packaging represents 44% or $19 billion of flexible packaging's portfolio in the U.S. If you add beverages and pet food, this rises to 52% or $22.4 billion. Thus, FPA and its members are dedicated to the protection and preservation of food products as well as the reduction of food insecurity, food borne illnesses, and food waste.

A recent groundbreaking study in *Nature Food* demonstrated that global food loss and food waste account for 9.3 Gt of CO2 equivalent – representing about half of the global annual greenhouse gas emissions from the whole food system, which itself represents a staggering third of all global greenhouse gas emissions each year.[1] Further, food loss and waste have an outsized contribution to potent greenhouse gasses like methane, which the National Aeronautics and Space Administration attributes 20-30% of climate warming since the Industrial Revolution.[2] If we do not adequately address this crisis, our nation will have to contend with large-scale shifts in sea levels, rainfall patterns, and the shifting of seasons. FPA and its members strongly support the current goal set by the EPA and USDA to meet obligations under the United Nations Global Compact and The Paris Accord is to cut food waste/loss in half by 2030.

[1] Zhu et al., "Cradle-to-grave emissions from food loss represent half of total greenhouse gas emissions from food systems," *Nature Food* Volume 4, 2023: 243-247.
[2] Global Climate Change: Vital Signs of the Planet – Methane, (Washington D.C.: NASA, 2023).

FPA commends EPA, USDA, and FDA for their collaborative effort on this Draft National Strategy for Reducing Food Loss and Waste and Recycling Organics. Efforts to address systemic issues of food waste should be cross-cutting to avoid a piecemeal policy framework for food waste. Unfortunately, FPA has identified several areas of contradiction within the current draft that must be addressed to ensure this strategy does not have unintended effects that run contrary to the stated goals of preventing food loss and food waste (and therefore raising GHG emissions). These include not recognizing the value of packaging in reducing food loss and waste or incentivizing further innovation in the packaging space for these purposes; not acknowledging the carbon reduction and food insecurity achievement of packaging or spurring continued accomplishments this arena; and narrowly focusing on bio-based plastics instead of the broader investment needed in composting infrastructure for packaging and organics; and

## II. Background on Flexible Packaging's Role in Preventing Food Loss and Food Waste

Flexible Packaging remains the packaging of choice due to its highly effective design features engineered by food type. Because the USDA has correctly identified the prevention of wasted food as the most preferred policy outcome on its Wasted Food Scale, FPA strongly encourages policymakers to rely on peer-reviewed lifecycle analysis methods that rely on quantity of food eaten metrics rather than quantity of food delivered metrics to inform and prioritize the policies in this draft strategy.[3] Packaging helps preserve food and extends its shelf-life, so that less food is lost or wasted, while also lowering the greenhouse gas footprint of that loss and waste. A report by the Oregon Department of Environmental Protection on the role of packaging and food waste found, for example, for meat, the average carbon footprint of food production was almost 12 times that of the carbon footprint of the processing and packaging. Similar ratios were found in all food categories.[4]

FPA's members utilize technologies, such as portion control, reclose features, perforated plastics, film toughness, and modified atmosphere packaging (MAP) to ensure the preservation of food. Flexible packaging's unique characteristics provide food loss and waste reduction benefits to every segment of the food supply chain, including after purchase by consumers. These characteristics include barrier properties of the materials used in flexible packaging which extend transport as well as shelf life, reclosability features, enhanced product evacuation, and the optimization of product to package ratios.

The United Kingdom's Waste and Resources Action Programme (WRAP) is one of the few climate nonprofits focusing on packaging's role in food waste. Their work is vital due to a severe lack of accurate data on why food typically gets thrown away by consumers and retailers. WRAP has identified spoilage as the primary reason for wasting fresh fruits, vegetables, salads, bakery dairy and eggs. WRAP has further identified that "serving too much" is the primary reason for

[3] Silvenius et al., "The role of household waste in comparing environmental impacts of packaging alternatives," *Packaging Technology and Science* Volume 27.4, 2014: 277-292.
[4] Martin Heller, "Food Product Environmental Footprint Literature Summary: Packaging and Wasted Food," A report for the Oregon Department of Environmental Quality by the Center for Sustainable Systems, University of Michigan (September 2017).

wasting drinks, home-made meals, meat and fish.[5] Flexible packaging that extends shelf life is most important for this first group, while designing portion control packaging is most important for the second group."

## III. Modified Atmosphere Packaging's (MAP) Unique Role in Food Waste and Food Loss Prevention Through Shelf-Life Extension

Flexible Packaging has led the way in preventing food loss and waste through the use of modified atmosphere packaging. The principle of MAP is the replacement of air in the package with different fixed gas mixtures and the use of flexible films to control the dispersion of gas into and out of the package. While the technology is newer from a materials perspective, the successful commercialization of MAP in the late 1970s was preceded by over 150 years of scientific research on the inhibitory effects of CO2 on microbial growth, as well as the effect of gaseous atmospheres on respiring produce. Flexible plastic packaging materials comprise nearly 90% of the materials used in MAP and the main gases used are Oxygen (O2), nitrogen (N2) and carbon dioxide (CO2). Vacuum packaging is classified as a unique form of MAP due to the removal of air from the environment itself is a modification of the atmosphere.

MAP is unique among packaging technologies because it allows for products to be tailored to the biodiversity of food.[6] Most fruits and vegetables lose their freshness when the water loss is 3%–10% of their initial weight. The shelf life of fruits and vegetables can be extended by slowing down respiration and minimizing water loss. Proper MAP will restrict the rate of water loss to control the relative humidity around the produce, and decrease the respiration rate of the produce, slowing ripening rates in fruit and the activity of decay-causing organism's to further extending shelf life. This has allowed fresh-cut processors to begin providing a much greater diversity of products, which now includes products like artichoke hearts, baby salad greens, sliced strawberries, among countless more. Films for low, medium, and high respiration rate commodities are now available.

Extending the shelf life of meats is very different than fruits and vegetables. Rather than water and respiration playing the primary role in spoilage, lipid oxidation and bacterial growth plays the critical role. In terms of nutrition lipids provide essential fatty acids, fat soluble vitamins, omega-3 fatty acids, and linoleic acid. While nutritionally beneficial, the oxidation of lipids gives rise to rancid odors and flavors, texture changes and nutritional losses. Oxygen is also the essential gas used metabolically by aerobic spoilage bacteria and pathogens, a key food safety concern. The flexible packaging solution for meats therefore involves chilling and limiting oxygen to extend shelf-life.

FPA's own report, from 2014, "The Role of Flexible Packaging in Reducing Food Waste," also summarized in these comments, showed how packaging technologies can help preserve and prevent food loss and waste throughout the supply chain. Some examples include bananas lasting

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[5] Parfitt, Barthel, and Macnaughton, "Food Waste within Food Supply Chains: Quantification and Potential for Change to 2050*," Philosophical Transaction of the Royal Society Biological Sciences* Volume 366, 2010: 3065-3082.

[6] Laurel McEwen, "The Value of Flexible Packaging in Extending Shelf Life and Reducing Food Waste: A Flexible Packaging Association Report" (Linthicum: FPA, 2014).

36 days in perforated polyethylene bags versus 5 days unpackaged; the shelf life of cucumbers extended from three days to 14 days when wrapped in polyethylene shrink wrap; beef waste extended from four days to up to 30 days when vacuum packed in oxygen barrier films; food waste reduction from 11.0% to 0.8% when bread is packaged in biaxially oriented polypropylene film; and packaging grapes in perforated bags leads to a 20% reduction in in-store waste.[7]

Further, FPA did a literature review of peer-reviewed publications to put more numbers behind the industry claims.[8] Packaging keeps fruits and vegetables safe to eat by an average of 19 days with some extensions, and the life of table grapes alone, up to ninety days. Meats generally stay safe to eat for an additional nine days, with the largest increase in freshness being ground beef at 17 days. FPA's report only had peer-reviewed data for one type of cheese – provolone, which was safe to eat for a staggering 90 additional days. If preventing greenhouse gas emissions by reducing food loss and waste is the goal of this Strategy, it should focus on providing grants to organizations engaged in innovating in this space.

Preventing food loss and waste are only one environmental benefit flexible packaging provides to the food system. FPA member company, StePacPPC detailed the reduction in carbon footprint associated with the use of its MAP packaging technology for preserving the quality of fresh produce in many different supply chains. In one particular case, the use of MAP technology for green beans shipped from Guatemala to Miami enables transport via container ship instead of by air, reducing the carbon footprint by 65,232 CO2 equivalents per container load, which is equivalent to the annual CO2 emissions of 20 typical passenger vehicles.[9]

## IV. Consumer Education Should Focus on Reducing Food Waste

The Draft Strategy has correctly identified that consumer education is of paramount importance to raise awareness about the environmental and economic impacts of food waste. FPA has found that many consumers do not recognize that flexible packaging protects food in the home which in turn leads many consumers to adopt unpacking strategies that potentially decrease the longevity of products (i.e. taking products out of their packaging or piercing MAP products to 'let them breathe').[10] This finding is also important because, among the minority of consumers who do recognize that packaging can keep products fresher for longer, attitudes about packaging are significantly less negative. The same study also found that when presented with factually correct information about the environmental effects of food waste, consumers became more likely to prefer flexible packaging as the sustainable material of choice.

FPA's consumer research has also revealed that among those who are bothered by food waste, their three main reasons for concern where: a waste of money, a sense of wasting "good food"

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[7] Mike Richmond and Todd Bukowski, "The Role of Flexible Packaging in Reducing Food Waste: Prepared for FPA by Packaging Technology Integrated Solutions, a Division of Havi Global Solutions Direct, LLC (March 2014).

[8] Laurel McEwen, "The Value of Flexible Packaging in Extending Shelf Life and Reducing Food Waste: A Flexible Packaging Association Report" (Linthicum: FPA, 2014).

[9] Jan Broeze, "Climate impact analysis StePac packaging: Effects of plastic end-of-life (EOL) options; Report of case studies," Wageningen University and Research (January 2023).

[10]. Laurel McEwen, "The Value of Flexible Packaging in Extending Shelf Life and Reducing Food Waste: A Flexible Packaging Association Report" (Linthicum: FPA, 2014).

and a general sense of guilt. This research also found that the environmental impact of food waste was likely not a trigger for behavior change.[11] Any consumer education plan should focus on the value of fresh food to effectively motivate consumers in adopting behaviors that reduce food waste.

## V. The Draft Strategy's Focus on Biobased Plastic Packaging May Confound Objectives

The FPA strongly supports peer-reviewed lifecycle analysis methods that ideally rely on quantity of food eaten metrics rather than quantity of food delivered metrics to evaluate packaging materials. The environmental impact of the product being packaged should also be incorporated into the life-cycle analysis, as recommended by The United Nations' Environment Programme.[12] While the new and innovative field of biobased plastics should be explored, they should be subject to the same metrics as all other packaging materials.

Before biobased plastic packaging is widely adopted, composting options must be scaled across the nation with proper education provided to consumers. The U.S. industrial composting system is too scarce for the average consumer, with very few communities having access. In addition, most industrial composting programs for households do not accept the related food packaging, be it paper, biobased plastic, or another compostable format. Thus, before encouraging more use of biobased packaging and the composting of food waste, the U.S. must spur investment in industrial composting and ensure that related packaging is accepted with the organics. The FPA supports the Recycling and Composting Accountability Act as it strives to improve our nation's recycling system from a material-neutral perspective.[13]

Once the systems are in place to process recycled organic waste along with its compostable packaging; the UNEP recommends labeling harmonization so that the consumer can easily identify the collection stream from the other recycling collection streams.[14] Further, all labeling for recyclability and composability should be federally harmonized, as packaging and packaging circularity cannot be stranded by a state-by-state approach, which will ultimately impact food waste as well. FPA supports the revision of the FTC Green Guides to address this and believes that this multi-agency Strategy should inform that work and vice versa.[15]

Reducing food waste and supporting organic recycling cannot be done in a vacuum. A systems-wide approach must be taken to achieve the Strategy's goals of reducing food waste, its associated carbon footprint, food insecurity, increased organics recycling and consumer education. Packaging has a vital role to play in all the above.

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[11] Laurel McEwen, "The Value of Flexible Packaging in Extending Shelf Life and Reducing Food Waste: A Flexible Packaging Association Report" (Linthicum: FPA, 2014).
[12] Notten et al., "Single-use supermarket food packaging and its alternatives: Recommendations from Life Cycle assessments" (Nairobi: UNEP, 2022).
[13] U.S. Congress, Senate, "Recycling and Composting Accountability Act," S.1194, 118th Cong., 1st sess., introduced in Senate April 19, 2023.
[14] Notten et al., "Single-use supermarket food packaging and its alternatives: Recommendations from Life Cycle assessments" (Nairobi: UNEP, 2022).
[15] FTC. Proposed Rule, "Guides for the Use of Environmental Marketing Claims" 88 FR 7656 (February 6, 2023).

## VI. International Cooperation to Reduce Food Loss and Food Waste:

While not the focus of the Strategy, FPA agrees that partnering with organizations outside the U.S. and taking into consideration all the governments and organizations that are working to prevent food loss and food waste is a key strategy. With a significant amount of food being imported to and exported from the U.S., the Administration should be taking these markets into consideration. Many losses are simply due to a lack of quality packaging for transport, leading to loss from rot or containment. Solutions exist, but there is a need for expertise in packaging, packaging equipment, and material access in these developing markets. By transferring basic packaging knowledge and technologies to these markets, the U.S. could drastically reduce food waste while improving food safety and security.

## VII. Further System-Wide Opportunities to Reduce Food Loss and Waste:

There are various opportunities across the supply chain, as well as with consumer education, and investment in composting infrastructure, that the FPA believes should be incorporated into the Strategy. FPA will be updating its Food Waste study in 2024 and looks forward to sharing those findings, including the newest packaging technologies contribution to food loss and waste reduction to the Administration and we stand ready to assist with the Strategy's objectives. FPA has previewed some of the report's findings below, which continue to be relevant to the challenges outlined in the Strategy.

Packaging Producer Opportunities**:**

Continued innovation of packaging technologies that extend the shelf-life of food, particularly fresh food, such as:

- MAP: modified atmospheric packaging is the enclosure of food in a package in which the atmosphere inside the package is modified or altered to provide an optimum atmosphere for increasing shelf life and maintaining food quality. The need for this technology for food arises from the short shelf life of food products such as meat, fish, poultry, and dairy in the presence of oxygen.
- Micro-perforations: consists of punching holes in the film of the packaging itself, regardless of whether it is a laminate or a complex. This type of perforation is ideal for fresh, perishable products, fruit and vegetables, and cold cuts that undergo a curing process after packaging.
- Active/Intelligent packaging: employs technology that intentionally releases or absorbs compounds from the food or the headspace of food packaging, which extends the shelf life of products by stalling the degradative reactions of lipid oxidation, microbial growth, and moisture loss and gain as well as monitor freshness, display information on quality, improve safety, and improve convenience.
- Product to Package Ratio: optimizing materials/strength for products, particularly for irregularly shaped items like poultry and beef.
- Process technologies: like aseptic/retort technologies, that allow products that would normally need to be refrigerated to now travel through the supply chain without cooling units.

- Portion control/Reclosable packaging: allows smaller portions to be eaten without waste and preserves the remaining product.

Retailer Opportunities:

- Reduce over-purchasing: eliminate buy-one, get-one free type programs that encourage overbuying and generate considerable food waste.
- Use of Intelligent Labels: technology that tells the consumer when the food is safe versus not, instead of "best buy" or "best before" dates.
- Containment: food, particularly produce, sold in packaging reduces loss versus product sold in bulk.
- Retail-ready packaging/shelf-ready systems: developed to get products from case to shelf in one smooth movement rather than decanting single units.
- Central processing for produce/ meats – focuses primarily on reducing back-of-store packaging of meats and produce.

Food Service Provider Opportunities:

- Central processing for produce/meat – reduces food waste by serving as a single processing and collection point for food waste, rather than having waste collected at each individual kitchen. Waste material collected can be safely used for animal feed or composting.
- Portion control/Reclosable packaging – Use of smaller take-out bags and reclosable packaging to reduce product leakages and spoilage.

Consumer Opportunities:

Education and consumer engagement are critical to begin changing consumer behaviors. This will require coordination throughout the food value chain, with retailers and brand owners educating consumers about the value of packaging, the increasingly complex technology of packaging, the importance of primary packaging in extending shelf-life at home, and ultimately the proper channels for end-of-life management. The U.K.-based organization WRAP published a consumer study in 2013 that looked at consumer perceptions toward packaging and contained many insights that could be applicable to the U.S. Some examples include:

- Four in five consumers (81%) believe packaging is a major environmental problem and 57% think it is wasteful and unnecessary — but their concern about packaging waste is reduced when they are educated about the role it plays in reducing food waste.
- Older consumers are more likely to think that packaging is a serious environmental problem and prioritize its perceived problems and disadvantages over any positives (in particular, they are most likely to think that storing food in the original packaging causes it to 'sweat' and spoil more quickly). Younger consumers, by contrast, are more ambivalent and more likely to recognize the benefits of packaging - in particular, its role in keeping products fresher for longer.

- Campaigns need to do a better job of educating consumers on the best way to buy food and the use of the appropriate packaging to keep it fresher for longer.

**VII: Conclusion & Next Steps:**

Thus, while the Draft Strategy's goals are laudable, FPA submits that the Administration's failure to consider packaging that has the immediate potential to reduce food loss and waste, increase recycling, and most important for this Strategy – directly and immediately reduce food insecurity and carbon footprint. Packaging is a critical component (beyond just biobased plastics) in moving the U.S. closer to the 50% reduction target by 2030. This multi-agency approach can further be refined by looking across the agencies for conflicting strategies or goals that would disincentivize the protection of the nation's food supply and result in unintended environmental consequences, such as EPA's Draft Strategy to Prevent Plastic Pollution, which villainizes plastic packaging and wrongly focuses on upstream production instead of downstream circularity.[16]

The Administration should recognize and incentivize the use of current packaging technologies to prevent food loss and waste throughout the supply chain and continue to lower our carbon footprint. The Strategy should ideally incentivize continued research and development of new packaging technologies to continue innovating to solve food loss and waste. It should harmonize the approach to bioplastics recognition, acceptance, and consumer education, and invest in industrial composting access across the U.S., with mandates and standards for systems that accept packaging along with the organics.

FPA is pleased to provide these comments on the Strategy and reiterates our and our members' eagerness to work with the Administration on including the vital packaging aspects that are missing, to ensure the Strategy is effective and the outcome of the goals are reached. Please do not hesitate to contact me with any questions or for more information.

Sincerely,

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Alison Keane, Esq., CAE, IOM
President & CEO

[16] EPA. Notice, " Draft National Strategy to Prevent Plastic Pollution: Request for Public Comment" 88 FR 27502 (May 2, 2023).