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ACHIEVING ZERO FOOD WASTE

A State Policy Toolkit: Developing End Markets for Compost

MAY 2023

ZERO FOOD WASTE COALITION

This is a product of the Zero Food Waste Coalition. ZFWC brings consumers, businesses, and government together to build momentum and alignment on food waste policy.

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About the Harvard Law School Food Law and Policy Clinic FLPC serves partner organizations and communities in the United States and around the world by providing guidance on cutting-edge food system issues, while engaging law students in the practice of food law and policy. FLPC is committed to advancing a cross-sector, multi-disciplinary and inclusive approach to its work, building partnerships with academic institutions, government agencies, non-profit organizations, private sector actors, and civil society with expertise in public health, the environment, and the economy. FLPC's work focuses on increasing access to healthy foods, supporting sustainable and equitable food production, reducing waste of healthy, wholesome food, and promoting community-led food system change. For more information, visit www.chlpi.org/FLPC.

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This report is one of six sections from *Achieving Zero Food Waste: A State Policy Toolkit*. The full version of the report is available at https://zerofoodwastecoalition.org/state-toolkit/. The chart below includes the full list of the policies in the master report, with the policies contained within this report highlighted.

Policy	Model State
Building and Broadening Organic Waste Bans and Beyond	
Organic Waste Bans	Vermont
Food Donation Requirements	California, New York
Mandatory Reporting	NRDC model legislation
Disposal Surcharge Fees	ILSR model legislation
Opportunities to Promote Food Donation	
Liability Protection	New Jersey
Tax Incentives	California
Food Safety	Texas
Supporting Organic Waste Processing Infrastructure	
Permitting and Zoning Composting Facilities	Maryland, Ohio
Animal Feed	—
Developing End Markets for Compost	
Compost Procurement	Washington
Compost Application	California
Preventing Food Waste Upstream	
Date Labeling	—
Other Governmental Action to Address Food Waste	
K-12 Schools	Rhode Island, Maryland
Climate and Solid Waste Plans	New Jersey
Other Government Support	—

CONTENTS

INTRODUCTION

Approximately 38% of food in the United States goes unsold or uneaten.[1] The mountain of wasted food totals 91 million tons annually,[2] which is equivalent to the weight of approximately 219 Empire State Buildings.[3] Most of this wasted food goes to landfills, incinerators, or sewers or is left on farm fields to rot.[4] Households, food producers, and other businesses in the United States spend $444 billion each year to grow, process, transport, and dispose of food that ultimately is never eaten.[5]

Food is wasted at all levels of the food system—in farms, grocery stores, restaurants, and homes—and this waste has serious environmental and societal consequences. Producing food that ends up uneaten consumes 22% of all freshwater, 19% of all fertilizer, and 16% of all cropland in the United States.[6] Food waste generates about 270 million metric tons of CO_2 equivalent greenhouse gas emissions each year, roughly equivalent to the annual emissions from 58 million passenger vehicles.[7] But the negative consequences of wasting food extend beyond the environmental impacts and loss of resources that could have been otherwise allocated. More than 1 in 10 Americans suffer from food insecurity despite the abundance produced by our farms and factories.[8]

With the Nation's goal of cutting food waste by 50% by the year 2030,[9] state leaders are at the vanguard of the movement, crafting policies to address food waste and reaping the environmental, social, and economic benefits. Further, though the federal government can take many vital steps to reduce food waste through regulations and funding, state governments, as the primary regulators of municipal solid waste, have at their disposal several unique policy options which would be difficult to implement under federal law.

State governments have sought to address food waste by banning organic waste from landfills, mandating or promoting surplus food donation, supporting food recovery and composting infrastructure, and re-evaluating how schools handle food waste. States that have implemented these policies have done so through processes of identifying local problems and rigorous experimentation to craft effective and innovative solutions. While the methods employed by states vary, they provide an array of experiences with food waste reduction upon which other states and the federal government can now draw.

CONTENTS OF THE TOOLKIT

State leaders are advancing efforts to tackle food waste across the United States—responding to consumer demand, creating jobs and economic opportunities, ensuring food makes it to those experiencing food insecurity, and addressing environmental harms and climate change. This toolkit seeks to similarly embolden officials and advocates from across the country to learn from others' successes and accelerate their own leadership and impact. To do so, this toolkit contains a range of tried and tested policy opportunities that states can use to prevent food waste and keep food out of landfills and incinerators. The target audience for this toolkit is state policymakers and advocates—whether their interest stems from concerns around climate change and environmental sustainability, financial responsibility, increasing food rescue, or finding opportunities to support local farmers,

all of which can be achieved through policies described in this toolkit. While this toolkit was drafted with this audience in mind, it may also be helpful to a wide range of individuals and groups interested in enacting legislation to tackle food waste at the local, state, or federal level (see Federal Actions on Food Waste text box below for recent federal activity around food waste).

FEDERAL ACTIONS ON FOOD WASTE

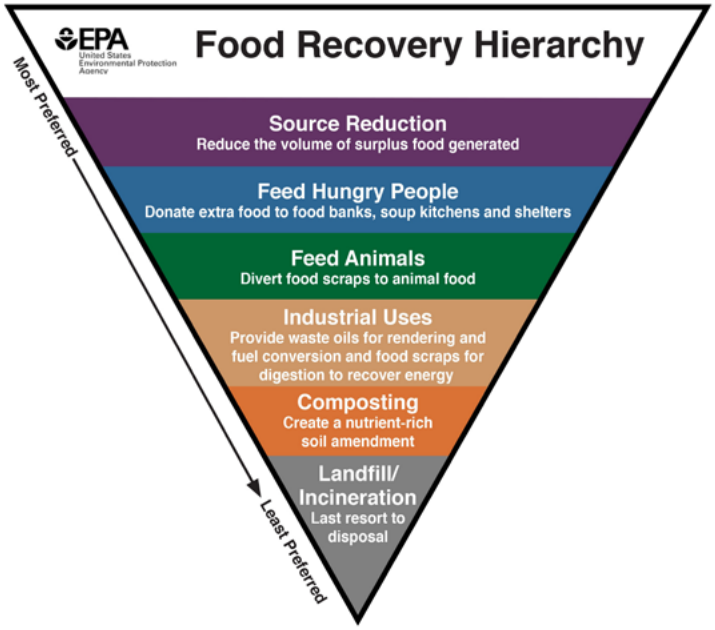
In addition to advocacy on the state and local level, the Harvard Law School Food Law & Policy Clinic (FLPC), NRDC (Natural Resources Defense Council), ReFED, and World Wildlife Fund (WWF) have done significant joint work on federal policies to prevent and reduce food waste. In April 2023, FLPC, NRDC, ReFED, and WWF formalized their partnership and created the Zero Food Waste Coalition.[10] The Coalition builds momentum and alignment on food waste policy. In April 2021, the four organizations, along with many private sector supporters, local government agencies, and non-profit organizations—published the U.S. Food Loss & Waste Policy Action Plan for Congress & the Administration (Action Plan).[11] The Action Plan calls upon Congress and the Biden administration to take ambitious action to achieve the goal of cutting U.S. food loss and waste in half by 2030. It recommends five key policy actions ranging from investing in infrastructure and programs that measure and prevent food waste to standardizing date labeling at the federal level. For more details, please see the U.S. Food Loss and Waste Action Plan for Congress & the Administration.[12]

In April 2022, FLPC, NRDC, ReFED, and WWF followed up on the Action Plan with Opportunities to Reduce Food Waste in the 2023 Farm Bill, a report which contains 22 detailed recommendations for how the 2023 Farm Bill can curb food waste, with a focus on opportunities to prevent food waste, recover surplus food, promote food waste recycling, and enhance coordination in food waste prevention efforts. The report includes legislative priorities such as standardizing date labels, creating a national education campaign around food waste, funding policies and programs to support organic waste recycling, and funding new positions to promote food waste prevention efforts at USDA and across government agencies. Many of the recommendations in the report are federal corollaries to state policies included in this toolkit; for example, improving federal tax incentives for food donation, and incentivizing compost application. Federal, state, and local governments must work together to tackle food waste. State and local governments can work together to serve as innovators, testing initiatives on small scales and tackling policies under their control. While the federal government can legislate in areas where uniform standards are essential, as with date labeling.

HOW TO USE THIS TOOLKIT

The toolkit introduces a wide range of policies that states can implement to address food waste. For each policy, it includes background on the issue, explains the need for the policy, describes any relevant federal legislation, outlines best practices for the state policy, and offers an example of existing or proposed state law that incorporates many of these best practices. The Appendix includes model legislative language for each featured policy that states can use as a starting point to develop and pass their own policies. Some models are completely finalized, whereas others include options and comments to help guide states to tailor the policy to fit their unique circumstances while still achieving the policy goals. In some instances, our organizations have drafted the legislation together, while in other instances we have included model legislation drafted by other organizations. This toolkit was designed to enable users to jump to the sections that will be most useful to them. The toolkit makes frequent use of cross-references to refer readers to other sections of the toolkit that cover related information.

The toolkit begins with the policies that are most effective at reducing food waste disposal—organic waste bans and related policies that restrict the disposal of food waste in landfills or incinerators. Organic waste disposal bans result in significant economic, social, and environmental benefits, including the reduction of food waste generation and increase in food donation, in addition to the expected increase in organic waste recycling.[13] While all the policies introduced in this toolkit are beneficial, policies that ban organic waste from going into landfills will likely be the most impactful at diverting food waste from disposal.



It also takes significant effort to get these policies passed and implemented, while also ensuring that compliance includes food waste prevention and food rescue and does not focus solely on organics recycling. For states that are not ready to pass organic waste bans, there are still significant steps they can take to move the needle on food waste, including promoting food donation, supporting composting infrastructure and compost end markets, and addressing food waste in schools.

While reading and using this toolkit, readers should keep the Environmental Protection Agency's (EPA) food recovery hierarchy in mind.[14] The hierarchy focuses on different management strategies for food waste, starting with a base built on food waste prevention. It then moves to feeding hungry people, feeding animals, diverting food waste to industrial uses, and lastly diverting food waste for composting. Readers should consider how the hierarchy aligns with various policies and how to shape policies according to the hierarchy to maximize impact.

Each policy will have different impacts on different aspects of the food system, including environmental and social aspects. The types of impacts and outcomes of the policy will change who the natural constituencies and advocates are for a particular policy as well as the strategies for coalition building to inform and support that policy. For example, tax incentives for food donations will increase food rescue, meaning that food recovery organizations, food banks, and anti-hunger advocates are likely to be natural allies, and it will also reduce the financial costs associated with disposing of surplus food, meaning that food businesses, such as retailers, restaurants, processors, and distributors, may also support the efforts. Wherever possible, states should involve potentially affected stakeholders in crafting legislation and amending policies.

This toolkit is composed of six sections that each contain a range of potential policy solutions that a state could pass and implement to address food waste. While each section deals with a specific category of policies, these policies do at times intersect, and the toolkit includes cross-references to other sections to highlight this overlap.

Section I: Building and Broadening Organic Waste Bans and Beyond

This section introduces policies to eliminate food waste from landfills. These policies include organic waste bans and mandatory organics recycling laws, food donation requirements, mandatory reporting laws that require entities to report on food waste generation to help develop data to support organic waste bans or planning for recycling infrastructure, and disposal surcharge fees that raise revenue for food waste diversion efforts like organic waste bans. This section includes:

- **Organic Waste Bans:** This subsection explores state laws that ban disposal of food scraps in landfills and incinerators, looking to Vermont as a model.
- **Food Donation Requirements:** This subsection explores state laws that ban disposal of food scraps in landfills and incinerators and require surplus food be donated as a way to reduce food waste. It looks specifically to the organic waste bans in California and New York as models.
- **Mandatory Reporting Laws:** This subsection outlines the potential for laws that require reporting by food waste generators, highlighting NRDC and the Environmental Law Institute's model legislation.
- **Disposal Surcharge Fees:** This subsection explores disposal surcharges that charge fees per ton of waste landfilled or incinerated to generate revenue for food waste diversion and other recycling efforts, relying on model legislation drafted by the Institute for Local Self-Reliance and using an introduced Maryland bill as a model.

Section II: Opportunities to Promote Food Donation

This section introduces policies that can promote and incentivize the donation of food (aside from donation requirements highlighted in Section 1), including tax incentives, liability protection, and food safety for food donation. This section includes:

- **Liability Protections for Food Donation:** This subsection describes the federal Bill Emerson Good Samaritan Food Donation Act,[15] as amended by the Food Donation Improvement Act,[16] which provides liability protections to food donors, and suggests methods for states to expand liability protection for food donations, using New Jersey's law as a model.
- **Tax Incentives for Food Donation:** This subsection presents current federal tax incentives for food donors and delves into opportunities for states to expand tax incentives as a mechanism to spur food donation, looking specifically at the tax incentives adopted in California as an example.
- **Food Safety Guidance for Food Donation:** This subsection explores the complexity of food safety regulations and the roles of federal and state governments in breaking down barriers to food donation presented by unclear food safety regulations, using Texas regulations as a model policy.

Section III: Supporting Organic Waste Processing Infrastructure

This section introduces a policy that can help states support and develop composting infrastructure to ensure there is sufficient capacity to recycle food scraps. This section includes:

- **Permitting and Zoning for Composting and Anaerobic Digestion Facilities:** This subsection explores opportunities for states to improve composting infrastructure by directing regulatory agencies to streamline permitting and zoning for composting facilities, using Maryland and Ohio EPA guidance as a model for some of the key components.
- **Recycling Food Scraps into Animal Feed:** This subsection briefly walks through the history of how this beneficial practice has become heavily regulated. This section suggests eliminating state laws that restrict or unnecessarily burden those who wish to develop businesses that repurpose food scraps into profitable animal feeds, and further recommends providing informational and monetary support to those businesses.

Section IV: Developing End Markets for Compost

This section introduces policies that can help states support end markets for finished compost products resulting from composting food scraps, to make the financial case for increased recycling of food scraps. This section includes:

- **Compost Procurement:** This subsection explores compost procurement policies where states commit to purchasing local compost for their needs in order to support the market for compost, using Washington State's compost procurement law and the NRDC and Environmental Law Institute's drafted model as examples.
- **Incentivize Compost Application:** This subsection highlights opportunities for states to incentivize the application of compost to improve soil health, sequester greenhouse gasses, and support compost end markets, using California's Healthy Soils Program as a model.

Section V: Preventing Food Waste Upstream

This section outlines policies to prevent food waste upstream, including reforming date labels to prevent safe, wholesome food from being thrown away due to confusion. This section includes:

- **Date Labeling:** This subsection explains what date labels mean and suggests how state governments can strengthen their date labeling laws to reduce consumer confusion and prevent food waste, using a bill introduced in Massachusetts as a model.

Section VI: Other Governmental Action to Address Food Waste

This section outlines other governmental policies and actions that states can take to reduce food waste, including food waste efforts in K-12 schools, climate and solid waste action plans, and government grants and support. This section includes:

- **Food Waste Reduction in K-12 Schools:** This subsection discusses the policies that states, municipalities, school districts, and schools can implement to decrease food waste, using Rhode Island's legislation related to food waste in K-12 schools to demonstrate legislative steps taken to enact such change.
- **Climate and Solid Waste Plans:** This subsection explores the potential to include food waste reduction targets and actions in climate action plans and solid waste management plans, using New Jersey's climate plan as a model.
- **Government Support for Food Waste Reduction:** This subsection explores federal and state government support for food waste reduction via funding and education.

SECTION IV

DEVELOPING END MARKETS FOR COMPOST

While states can scale up composting by supporting new facilities (see Section III: Supporting Organic Waste Processing Infrastructure), on the other side of the equation, states can encourage increased composting by developing the end market for finished compost products resulting from composting food scraps and other organics. Growing the compost market benefits entities all along the food supply chain. In particular, creating end markets may result in better profit margins and reduced tipping fees for compost processing which would in turn attract more food waste generators to composting rather than disposal; in other words, supporting these end markets makes composting a more viable and less expensive option than throwing organic waste materials into a landfill or incinerator. Farmers can also benefit from compost end markets as they can use the soil amendment products derived from composting or anaerobic digestion (compost products) to improve soil quality.[17] Beyond diverting food waste from disposal, applying compost to soil has many other environmental benefits, such as reducing the need for fertilizer, increasing agricultural yields and soil water retention, and sequestering carbon (see Environmental Benefits of Compost Application text box below for more information).

ENVIRONMENTAL BENEFITS OF COMPOST APPLICATION

The environmental benefits of compost stem not only from diverting food waste from disposal, but also from treating soil with compost, which leads to higher agricultural yields, increases soil water and nutrient retention, and increases carbon sequestration.[18] Compost can serve as an alternative to traditional chemical fertilizers, reducing and in some case eliminating the need for artificial fertilizers.[19] Reducing chemical fertilizer use decreases costs for farmers as well as environmental harms related to fertilizer runoff such as algal blooms and the significant carbon pollution associated with fertilizer production.[20] Additionally, compost application can improve overall soil health and quality, which can aid in habitat restoration and increase crop yields, much like the process of irrigation.[21] Lastly, applying compost to farmland not only benefits soil, but can also have crucial carbon sequestration effects, mitigating the effects of greenhouse gas emissions.[22]

In general, creating more end markets for compost will encourage the development of more composting facilities and make policies like organic waste bans more realistic and affordable (see Section I: Building and Broadening Organic Waste Bans and Beyond). To realize the social and environmental benefits of composting, states can support the development of compost end markets, which will help make the financial case for increased recycling of food scraps. This section introduces two policies states can use to develop compost end markets: (1) compost procurement, where the government itself purchases the compost, and (2) incentivizing compost application, where the government pays farmers to apply compost to their land.

COMPOST PROCUREMENT

INTRODUCTION

A primary way to develop an end market for compost is to use the government's purchasing power to support local composting facilities by requiring the government to procure compost or prioritizing the purchasing of compost over other soil amendment products. Procurement policy is a powerful tool for aligning public spending with government policy objectives and promoting beneficial practices in private industry. Incorporating values-driven procurement principles into acquisition policy helps to ensure that public institutions spend taxpayer dollars in a manner that promotes the public interest. State government can mandate that state and local governments and their contractors procure compost (with a preference for compost produced within the state) for use in earth-disturbing activities such as landscaping, construction, roads, low-impact development, and green infrastructure projects.

Aside from enhancing the market for compost, utilizing local compost has other added environmental and social benefits: it creates local demand for sustainable products, generating jobs and economic activity; helps spur the development or expansion of local organics recycling; and helps promote diversion of food scraps from disposal. The following section outlines best practices for state compost procurement, highlighting a bill introduced in Washington in 2020.

FEDERAL LAW

President Biden's Executive Order 14057, published in December 2021, calls on all federal agencies to support markets for recycled products,[23] though as of early 2023 there are no federal laws or requirements specific to compost procurement.

MODEL STATE LAW

Currently, California and Washington have statewide compost procurement policies, and Illinois had a pilot program that was repealed January 2022.[24] Local jurisdictions such as King County, WA; Sacramento, CA; Berkeley, CA; and Denver, CO all have some form of local compost procurement policy as well, and NRDC and ELI used these policies as a guide for their model local compost procurement legislation.[25] While compost procurement policies are relatively new, the existing local and state examples incorporate the following best practices:

- **Covering the maximum number of government agencies:** State procurement policies should cover the maximum number of state

government agencies and local governments and, if possible, should also cover their contractors. For example, California's regulations implementing SB1383 require all cities and counties (except rural ones) to procure compost.[26]

- **Setting targets for amount of compost to purchase:** To spur purchasing, policies can require jurisdictions to hit a specific target for compost procurement. This target could be reflected in tons per capita annually. California's regulations implementing SB1383 set a target amount of compost for local jurisdictions to purchase based on their population.[27] Model legislation should also include a provision accounting for cost concerns, such as carve outs for cost prohibitive compost purchases.
- **Using an established standard for compost quality:** To ensure the quality and safety of compost procured and ultimately applied, the state should use an established test method protocol. A protocol to consider is the U.S. Composting Council's Seal of Testing Assurance Program,[28] which uses the Test Methods for the Examination of Compost and Composting.[29]
- **Prioritizing local compost:** Prioritizing the purchase of local compost will support the local economy and local food scraps recycling efforts, and model policies should mandate or at least prioritize that governments purchase local compost. For example, Washington's law requires that localities give priority to locally produced compost.[30] The policy can also specify the desired compost composition. For example, Washington's law also encourages governments to purchase compost with at least 8% of its contents derived from food scraps.[31]
- **Outlining uses for compost:** To underscore the value of composting across a wide array of projects, the policy can outline potential usages for compost in construction, landscaping, roads and highways, and green infrastructure. For example, NRDC and ELI's model compost procurement policy lists a variety of usages for compost across an array of industries.
- **Requiring recordkeeping and reporting:** To ensure that mandates or targets are met, the law should require covered entities, such as local jurisdictions and state agencies, to keep records and report on their compost use, including volume purchased, source, and how it was used.

Washington State's 2020 House Bill 2713 is an example of a model compost procurement policy as it incorporates many of the best practices outlined above, including:

- **Covering state and local governments:** The law requires state and local governments to consider whether compost products can be used in government funded projects when planning, soliciting, or reviewing bids for such projects.[32] If compost products can be used, the state or local agency must procure local compost unless certain exemptions exist (e.g., compost products are not available within a reasonable amount of time).[33]
- **Prioritizes local compost made of food scraps**: Additionally, the law encourages agencies to prioritize local compost when procuring compost products and recommends that local governments with residential composting programs to enter into purchasing agreements with its compost processor to purchase back compost produced from its food waste.[34] As noted above, the law encourages government to purchase compost made from at least 8% of food scraps.[35]

- **Incentivizing farmers to use compost:** The law also creates a three-year compost reimbursement pilot program for eligible farmers to reimburse them for purchasing and utilizing compost.[36]

See Appendix J for model legislation for compost procurement.

INCENTIVIZE COMPOST APPLICATION

INTRODUCTION

In addition to all the economic and environmental benefits of composting food waste discussed in Section II: Supporting Composting Infrastructure, application of compost on farmland has significant environmental and carbon sequestration benefits. Applying compost helps improve overall soil health, increasing soil organic matter, its biodiversity, and its capacity to absorb water and nutrients, and reducing the need for expensive and resource-intensive chemical fertilizers.[37] Applying compost to farmland not only benefits soil, but can also have carbon sequestration effects, mitigating the impacts of greenhouse gas emissions.[38] Lastly, programs incentivizing compost application can help create an end market for local compost products and thus support the development and growth of food scraps recycling infrastructure. Because of these benefits, several states and localities, including California and Hawaii, have passed policies or created programs to incentivize farmers to apply compost to improve soil health and serve as a tool for carbon sequestration. The following section provides an overview of federal laws around compost application and then outlines best practices for these policies, highlighting California's Healthy Soils Program as a model.

FEDERAL LAW

As noted above, a December 2021 Executive Order calls on all federal agencies to support markets for recycled products.[39] The USDA is also increasingly recognizing the importance of developing and incentivizing climate-smart farming practices. Pursuant to Executive Order 14008 on Tackling the Climate Crisis at Home and Abroad,[40] in 2021, the USDA engaged in an outreach and planning process to create a strategy and recommendations on how best to develop and implement climate-smart agriculture and forestry practices.[41] In February 2022, the USDA announced the program Partnerships for Climate-Smart Commodities, which will provide funding for specified entities to develop pilot projects likely to generate greenhouse gas benefits and increase soil carbon sequestration.[42] The program announcement specifically lists adding soil amendments (which includes compost) as a qualifying practice.[43]

MODEL STATE LAW

A few states have begun to incentivize compost application. For example, California and Hawaii both have such programs, and New York's soil health legislation was signed into law December 2021. Though the practice is just emerging, these examples have highlighted opportunities and challenges of such programs. A state interested in implementing a similar program should consider the following best practices:

- **Allocating funding:** These programs are strongest when they offer funding to incentiv-

ize farmers to apply compost. Successful programs are backed by secure and stable sources of funding. For example, in California, the Healthy Soils Program is funded by proceeds from the state's cap and trade program, which limits aggregate greenhouse gas emissions from major emitters in California, provides allowances for emissions, and then allows entities to buy and sell emissions allowances in the marketplace.[44]

- **Ensuring application accessibility:** To best reach producers, the funding application should be as accessible and simple as possible, and the state should offer technical assistance for those who require it. Technical assistance to farmers has been an incredibly valuable component of the healthy soils program in California, with 59% of applicants utilizing technical assistance.[45] This support is especially crucial for those with language barriers. Additionally, California streamlined the application, eliminating most essay questions and reducing the attachments required.
- **Prioritizing marginalized producers:** Lastly, to ensure equity, these programs should specifically target marginalized producers, including socially disadvantaged farmers, farmers of color, women farmers, and small- and mid-scale farmers. Due to historical and ongoing systemic discrimination, marginalized farmers have fewer resources and less access to financial and social capital and may face more significant burdens to applying for grant funding. California currently designates 25% of total funding for its Healthy Soils Program to socially disadvantaged farmers and ranchers[46] but recommends stronger actions including prioritizing all funding for small- and mid-sized farmers, farmers of color, and women farmers.[47]
- **Utilizing an established standard for compost quality:** To ensure the quality and safety of compost procured and ultimately applied, the state should use an established test method protocol. A protocol to consider is the U.S. Composting Council's Seal of Testing Assurance Program,[48] which uses the Test Methods for the Examination of Compost and Composting.[49]
- **Prioritizing application of compost made with food scraps:** To help support the end market for compost, compost application programs can prioritize the application of compost that is made from food scraps. While no programs currently include such a requirement, Washington's compost procurement law encourages governments to purchase compost with at least 8% of its contents derived from food scraps,[50] and a compost application program could include a similar provision. To prevent contamination, anyone applying food-derived compost should ensure compost safety testing (see above). Further, a qualified state agency should develop a comprehensive education and outreach plan to ensure those applying compost do not contaminate feedstocks.

California's Healthy Soils Program, established in 2017 by Senate Bill 859, includes many best practices outlined above, including:

- **Incentivizing compost application:** The law provides incentives including "loans, grants, research and technical assistance, and educational materials and outreach, to farmers whose management practices contribute to healthy soils."[51] The Healthy Soils Program includes an Incentives Program, which provides incentives for farmers and ranchers to adopt best management practices around soil health,

including compost application, as well as a Demonstration Projects Program, which funds on-farm research and demonstration projects around soil health.[52]

- **Allocating funding:** The Healthy Soils Program is funded from the California Climate Investments fund, which holds proceeds from California's cap-and-trade program (money secured via the market for allowances discussed in greater detail above), and is administered by the California Department of Food and Agriculture (CDFA). As of May 2022, CDFA has awarded 688 projects, totaling more than $45.11 million in grant funds.[53]

A December 2020 progress report found that compost application was the most popular practice funded through the Healthy Soils Program with 72% of projects implementing compost application.[54] CDFA estimates the program is responsible for sequestering an estimated 134,000 metric tons of CO2 each year.[55]

See Appendix K for model legislation for compost application.

APPENDICES

MODEL STATE LEGISLATION

Note on definitions: throughout this document we use different definitions based on the models we pulled from and the implications of different words in different contexts. Of course, it is within the discretion of states using this toolkit to opt for different definitions or more standardized definitions as they see fit.

APPENDIX J: COMPOST PROCUREMENT

This legislation is modeled very closely off NRDC and Environmental Law Institute's model municipal ordinance for compost procurement and has been modified to be suited for a state-level law.

Section 1. Purpose

a. The state requires the procurement of compost (finished compost products) by all state and municipal departments and encourages the purchasing of compost by [*insert names of quasi-governmental and/or semiautonomous entities that the state does not fully control, such as semiautonomous boards, commissions, and other authorities, or public-private partnerships such as convention centers*], as well as by private entities, for use in projects where compost is a suitable material.

b. By increasing the use of compost, the implementation of this policy will provide economic and environmental benefits, including:

   1. Increased demand for compost from local compost suppliers;
   2. Reduced costs associated with landfill disposal;
   3. Development of new compost processing facilities and job creation;
   4. Increased soil-nutrient and water retention, which may reduce demand for irrigation and fertilizer and reduce stormwater runoff;
   5. Reduced greenhouse gas emissions by minimizing methane emissions from landfills and maximizing carbon storage from composting, potentially mitigating the need for new landfill construction; and
   6. Erosion prevention and land stabilization.

c. This statute is not intended to supersede existing federal, state, or local laws and regulations, including those that address materials procurement.

Section 2. Definitions

a. "Compost" means the product manufactured through the controlled aerobic, biological decomposition of biodegradable materials. The product has undergone mesophilic and thermophilic temperatures, which significantly reduces the viability of pathogens and weed seeds, and stabilizes the carbon such that it is beneficial to plant growth. Compost is typically used as a soil amendment, but may also contribute plant nutrients.

b. "Composting" means biological decomposition of organic constituents under controlled conditions.

c. "Contract" means state and municipal agreements and contracts, regardless of what they may be called, for the procurement or disposal of supplies, services, or construction.

d. "Contractor" means any person having a contract with a state or municipal entity.

e. "Cost prohibitive" means the product purchasing cost exceeds by more than 10 percent the cost of another product that would serve the same purpose.

f. "Covered entities" are state and municipal agencies that are covered by the policy including [*list state and local agencies you want to be covered by the policy or alternatively cover all state and local agencies*].

g. "Erosion" means the disintegration or wearing away of soil by the action of water.

h. "Green infrastructure" means an approach to wet-weather management that is cost-effective, sustainable, and environmentally friendly, and that incorporates management approaches and technologies that infiltrate, evapotranspire, capture, and reuse stormwater to maintain or restore natural hydrologies. Green infrastructure practices include, but are not limited to, open space, rain gardens, porous pavements, green roofs, infiltration planters, trees and tree boxes, swales, and curb extensions.

i. "Impervious surface" means any ground or structural surface that water cannot penetrate or through which water penetrates with great difficulty.

j. "Landfill" means a facility, other than a land application unit, where solid wastes are disposed of by burial in excavated pits or trenches or by placement on land and covering with soil or other approved material.

k. "Locally produced compost" means compost that is produced in the same region where it is being used.

l. "Private entity" means any person, business, or nonprofit that is not a government body or a contractor thereof.

m. "Procurement" means buying, purchasing, renting, leasing, or otherwise acquiring supplies, services, or construction. It also includes all functions that pertain to the obtaining of any supply, service, or construction, including description of requirements, selection and solicitation of sources, preparation and award of contract, and all phases of contract administration.

n. "Stormwater" means runoff that is generated from rain and snowmelt events that flows over land or impervious surfaces—such as paved streets, parking lots, and building rooftops—and does not soak into the ground.

o. "Top-dressing" is a method of adding compost, mulch, loam, peat, or a combination of these things as improvements to the soil or for leveling existing lawns.

Section 3. Procurement Requirements

a. General policy

1. Covered entities, except if otherwise exempted, shall purchase compost for use in public projects in which compost is an appropriate material, provided it is not cost prohibitive to acquire;

2. [*Insert names of quasi-governmental and/or semiautonomous entities*], as well as private entities that are based or operate in [*insert state*], are also encouraged to purchase compost, when possible, for use in their projects; and

3. In conjunction with the overarching compost procurement requirement, compost shall be used to amend soil in landscaping and construction projects, as well as to provide for erosion control and stormwater management in road and highway and green infrastructure projects, in accordance with the requirements outlined in subsections 4(b) through 4(e). Compost used in landscaping, construction, roads and highways, and green infrastructure will count toward satisfaction of the compost procurement goals of [*insert names of state entities subject to policy*].

b. Landscaping

1. Soil amendment prior to new planting

A. Prior to the installation of new plants in landscaping projects, covered entities are required, and [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged, to amend existing soil with compost. This requirement does not apply if soil tests reveal that pre-amendment soil is composed of at least 6 percent organic material to a depth of six or more inches or a condition exists that prevents the application of compost, such as oversaturation.

B. Soil shall be amended with compost at a rate of at least four cubic yards of compost per 1,000 square feet of soil. The compost shall be spread evenly across the project area, then incorporated into the soil to a depth of six inches. In areas where there is not six inches of soil in which to incorporate the compost, compost shall be incorporated at a rate of 25 percent compost to 75 percent soil to the existing soil depth.

C. Proof of satisfactory soil quality that did not require amending, the condition that prevented application of compost, or the completion of the required soil amendment with compost shall be documented by [*insert names of entities subject to policy*] and made available for review by [*insert name of government office that oversees procurement*] upon request.

2. Ongoing maintenance

A. Covered entities shall, and [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged to, purchase and use compost, where feasible, in ongoing landscaping activities, such as for top-dressing.

c. Construction

1. In addition to providing benefits for post-construction landscaping, the use of compost to amend soil that is compacted or disturbed during construction projects increases on-site water retention, decreases erosion, and contributes to better stormwater management.

2. The following measures shall be implemented in construction projects undertaken by covered entities. It is encouraged, but not required, that the measures are adopted in the projects of [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities.

3. Preserve existing soil

   A. To the extent possible, [*insert names of entities subject to policy*] shall keep original soil in place and avoid compacting it with construction equipment.

   B. When existing soil must be moved during construction, [*insert names of entities subject to policy*] shall keep it on-site for use once construction is completed.

4. Post-construction soil standards and amendment

   A. In areas where soil is left exposed after construction is completed (not impervious surfaces) and soil is being amended, covered entities shall, and [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged to, amend the soil to achieve the organic matter and pH standards in the following subsection (4.c.iv.2). The soil shall be amended using compost.

   B. Soil shall be amended such that the top eight inches contain between 5 and 10 percent organic material and are restored to their original pH levels, or to pH levels between six and eight. Five percent is sufficient for turf, and 10 percent is sufficient for planting beds. The amount of compost that will need to be added to achieve these standards will vary depending on the initial quality of the soil. Custom amendment rates specific to the soil for a particular project may be calculated using an online calculator from King County, Washington: https://kingcounty.gov/depts/dnrp/solid-waste/compost-calculator.aspx. Alternatively, the following preapproved amendment rates may be adopted:

      i. In turf areas, 1.75 inches of compost shall be incorporated into the top eight inches of soil, which amounts to 5.4 cubic yards of compost per 1,000 square feet of soil; and

      ii. In planting beds, three inches of compost shall be incorporated into the top eight inches of soil, which amounts to 9.2 cubic yards of compost per 1,000 square feet of soil.

   C. If soil is particularly compacted, the top four inches of the soil below the eight inches of amended soil shall be scarified.

   D. Compost shall only be incorporated into dry soil.

E. Proof of satisfactory soil quality that did not require amending, or of the completion of the required soil amendment with compost, shall be documented by covered entities and made available for review by [*insert name of state office that oversees procurement or alternative entity*] upon request.

d. Roads and highways

1. When undertaking erosion control measures in the context of road and highway construction and maintenance, covered entities shall use compost where possible, including when implementing best practices that call for the use of organic material. Measures for which compost shall be used include, but are not limited to, the following:

   A. Landscaping and planting;

   B. Filter berms and socks; and

   C. Compost blankets.

2. Compost shall contain the required organic material content, pH, and particle size for the intended use.

   A. Landscaping and planting:

      i. Moisture content—35 to 60 percent;

      ii. Particle size—less than 0.5 inches;

      iii. Soluble salts concentration—less than 4.0 mmhos/cm (ds/m);

      iv. Stability—stable to very stable; and

      v. pH—6.0 to 8.5.

   B. For filter berms, filter socks, and compost blankets compost must adhere to the specific standards contained in the 2003 American Association of State Highway and Transportation Officials' Provisional Standards Manual for filter berms (applies to filter socks as well) and compost blankets.

3. Satisfaction of the quality specifications for compost used in road and highway projects shall be documented by covered entities and made available for review by [*insert name of government office that oversees procurement or alternative entity*] upon request.

e. Low-impact development and green infrastructure

1. When constructing low-impact development and green infrastructure projects, covered entities shall, and [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged to, use compost where possible, including when adopting best management practices that call for the use of organic material. Measures for which compost shall be used include, but are not limited to, the following:

   i. Green roofs;

ii. Downspout disconnections; and

iii. Bioretention projects/rain gardens.

2. Covered entities shall consult state policies and manuals, including [*insert names of relevant state policies and manuals*], or relevant municipal and manuals for additional ways to incorporate compost into their projects.

3. The use of compost in low-impact development and green infrastructure projects shall be documented by [*insert names of state entities subject to policy*] and made available for review by [*insert name of state office that oversees procurement or alternative entity*] upon request.

Section 4. Compost Sourcing and Quality Requirements

a. Locally produced compost

1. Compost purchased by covered entities for purposes of complying with this policy shall be locally sourced.

2. If locally produced compost is not available, compost shall be sourced from outside the region, with preference given to products sourced as close as possible to [*insert applicable standard such as "Smith metropolitan statistical area"*]. Proof that locally produced compost was not available at the time of purchase or was cost-prohibitive shall be documented—including, if appropriate, by written confirmation from local providers—and included in the annual reports of [*insert names of entities subject to policy*].

3. [*Insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged to purchase locally produced compost or compost from outside the region when it is available and not cost prohibitive.

b. US Composting Council Seal of Testing Assurance (STA) Program certified compost

1. Covered entities shall, and [*insert names of quasi-governmental and/or semiautonomous authorities*] and private entities are encouraged to, purchase compost from US Composting Council STA Program–certified compost manufacturers.

2. Purchasers shall obtain technical data sheets from composting manufacturers detailing the test results for each compost shipment they receive. This information shall be kept on file and included in annual compost procurement reports.

Section 5. Reporting

a. Covered entities shall compile annual reports, to be submitted to [*insert name of state agency that oversees procurement or alternative entity*] on or before [*insert date*], that contain the following information:

1. The name of the [*insert names of entities subject to policy*];

2. The volume of compost purchased throughout the year and total funds expended on compost;

3. Information about the source of the compost and proof of its STA certification;

4. The end uses of the composted materials and proof of satisfaction of any quality specifications related to those uses;
5. The percentage of total materials purchased that consisted of composted materials; and
6. Recommendations for how to increase the percentage of purchasing composed of compost in the future.

b. [*Insert name of state office that oversees procurement or alternative entity*] shall review annual reports submitted by covered entities and track progress related to compost procurement throughout the state. This information will be made available to the public through regular reports on compost procurement and the state of composting in the state.

APPENDIX K: COMPOST APPLICATION

Section 1. Purpose

Application of compost has significant environmental and carbon sequestration benefits. Applying compost helps improve overall soil health, increasing soil's organic matter, its biodiversity, and its capacity of soil to absorb water and nutrients, and reducing the need for expensive and resource-intensive chemical fertilizers. Applying compost to farmland also has crucial carbon sequestration effects, mitigating the effects of greenhouse gas emissions. Given the value of compost application to healthy soils and climate change mitigation, the state hereby creates the Compost Application Program.

Section 2. Definitions

a. "Compost" means the product manufactured through the controlled aerobic, biological decomposition of biodegradable materials. The product has undergone mesophilic and thermophilic temperatures, which significantly reduces the viability of pathogens and weed seeds, and stabilizes the carbon such that it is beneficial to plant growth. Compost is typically used as a soil amendment, but may also contribute plant nutrients.

b. "Compost application" means application of compost to cropland and rangeland in a manner consistent with the Department's requirements.

c. "Department" means [*define this as needed for your state and include the state agency responsible for agriculture in your state. This could be called an agency, department, commission, etc.*].

d. "Greenhouse gas benefits" means greenhouse gas emissions source reduction or carbon sequestration.

Section 3. Compost Application Program

a. The Department shall establish and oversee a Compost Application Program. The program shall seek to optimize climate benefits while supporting the economic viability of [*insert name of state*] agriculture by providing incentives, including, but not limited to, loans, grants, other incentives, research,

and technical assistance and educational materials and outreach, to farmers who apply compost to their cropland or rangeland.

1. The Department shall provide targeted financial incentives to farmers who apply compost to their cropland or rangeland.
2. The Department shall provide technical assistance to farmers who apply compost to their cropland or rangeland by researching, developing, and publishing guidance on best practices for the proper amount and timing of application to support the benefits described in this section and ensure food safety of agricultural products and by taking other relevant technical assistance actions the Department deems appropriate.
3. In addition to the other duties in this section, the Department may provide loans and grants to support the development of compost infrastructure, develop and publish educational materials, and offer outreach to farmers and ranchers who could benefit from the Compost Application Program.

b. Subject to appropriation, the Department shall have [*insert appropriate amount*] in funds annually to be used by the Department to oversee the Compost Application Program.

c. The Department, in consultation with the panel, may determine priorities for the program and give priority to socially disadvantaged farmers and ranchers (as defined by 7 U.S.C. § 2279 and the U.S. Department of Agriculture; see also [*insert state definition for marginalized communities if available*]) as well as projects that apply compost with a certain percentage food waste. [*For a baseline, Washington uses eight percent as its standard for compost procurement*].

d. The Department shall quantify greenhouse gas benefits from the Compost Application Program.

e. The Department shall provide education and outreach about the Compost Application Program, particularly to socially disadvantaged farmers and ranchers.

f. The Department shall develop and publish guidance to support the safety of the compost.

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