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ACHIEVING ZERO FOOD WASTE

A State Policy Toolkit: Supporting Organic Waste Processing Infrastructure

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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About ReFED ReFED is a national nonprofit working to end food loss and waste across the food system by advancing data-driven solutions to the problem. We leverage data and insights to highlight supply chain inefficiencies and economic opportunities; mobilize and connect supporters to take targeted action; and catalyze capital to spur innovation and scale high-impact initiatives. Our goal is a sustainable, resilient, and inclusive food system that optimizes environmental resources, minimizes climate impacts, and makes the best use of the food we grow. To learn more about solutions to reduce food waste, please visit www.refed.org.

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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	—

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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

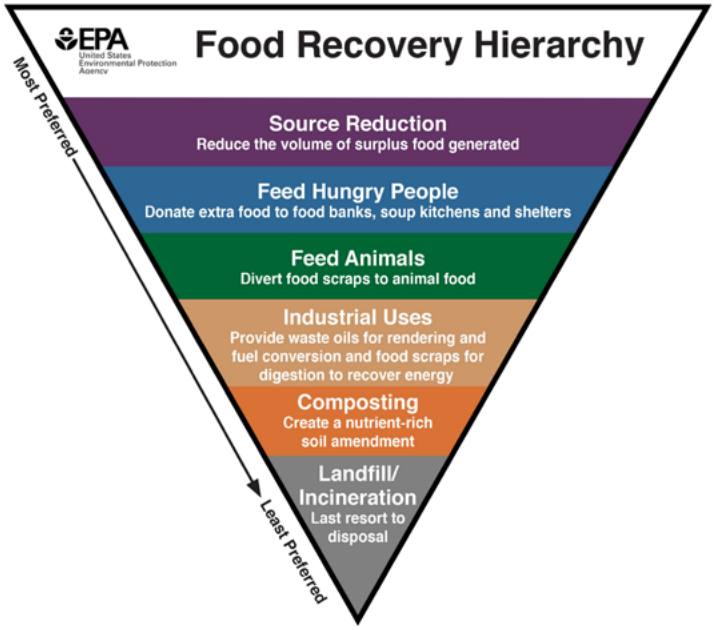
In addition to advocacy on the state and local level, the Harvard Law School Food Law & Policy Clinic (FLPC), NRDC (Natural Resources Defense Council), ReFED, and World Wildlife Fund (WWF) have done significant joint work on federal policies to prevent and reduce food waste. In April 2023, FLPC, NRDC, 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 III

SUPPORTING ORGANIC WASTE PROCESSING INFRASTRUCTURE

In the Environmental Protection Agency's Food Recovery Hierarchy, the agency prioritizes how to process food scraps that are no longer appropriate for human consumption by feeding food scraps to animals where possible and ensuring all remaining organic waste is diverted to composting and anaerobic digestion.

Feeding food scraps to animals is an efficient way to prevent methane generation caused by the disposal of food waste. However, safety scares in the 1980's led to a decrease in the practice of using food scraps as animal feed and an increase in federal and state regulation.[17] Since federal rules and regulations are now sufficient to protect animals and consumers from any harm or concerns that arose in the past, reducing state regulations around animal feed, utilizing state legislation to promote the practice, and providing resources and other guidance on how to use food scraps for animal feed is key to seizing this opportunity to reduce food waste.[18]

Composting is a widely recognized, successful approach for diverting food scraps from disposal and reducing greenhouse gas emissions; however, it requires significant infrastructure. Composting is the process of transforming organic material, such as food scraps, into humus, a key component of healthy soil.[19] Composting, the controlled aerobic, biological decomposition of biodegradable materials,[20] takes raw materials like food scraps, reduces their volume and mass through the presence of microorganisms and oxygen, and turns them into compost. There are several different types of raw materials (feedstocks) that can be used for composting, including materials source-separated from the municipal solid waste stream (e.g., food scraps, wood chips, and yard trimmings), livestock manure, and biosolids (nutrient-dense, semi-solid material from wastewater treatment plants, otherwise known as sludge).[21] Anaerobic digestion (AD) is another recycling process that can turn biodegradable materials, such as food scraps, animal manure, fats, and oils, into usable solid and liquid digestate, while also generating energy, through a series of biological processes.

Turning food waste into compost has both environmental and economic benefits. Composting food waste rather than disposing of it can prevent some methane generation and create a useful product—organic matter content in compost improves the chemical, biological, and physical properties of soil, reducing the need for chemical fertilizers.[22] In addition to environmental benefits, composting activity can help create jobs and business opportunities for local recycling/garbage collection companies and composting facilities. A study in Maryland found that small-scale composting facilities employ six times as many employees per ton as landfills and 11 times as many employees as incinerators.[23]

While composting is a key component to solving food waste and creating a circular food system by recycling nutrients into plants, it requires collection and processing infrastructure. While figures vary, one source notes that in 2017, there were 4,713 composting facilities in the United States, though only 869 of those accepted food scraps.[24] A key obstacle to developing more composting infrastructure and increasing overall capacity is the permitting and zoning process for composting facilities. The following section provides details on why permitting and zoning can pose barriers to building new composting facilities and how state policies can reduce these barriers and support growth. For other opportunities for states to support the composting industry, see Section IV: Developing End Markets for Compost. Following a discussion of permitting and zoning, this section will discuss the opportunity to support feeding food scraps to livestock.

PERMITTING AND ZONING COMPOSTING AND ANAEROBIC DIGESTION FACILITIES

INTRODUCTION

One primary challenge for composting and AD facilities is zoning and permitting—finding sites that are zoned to allow for composting (especially if the feedstock includes food scraps) and then securing necessary permits to collect and recycle organics on-site. Composting facilities typically need zoning approval from the local government and often need a solid waste facility permit or a source separated organics composting permit to accept food waste, both of which can pose barriers. Because composting is a scalable activity, occurring in backyards as well as large-scale, industrial facilities, it is essential that the permitting and zoning be similarly flexible and tiered. States can support the development of composting facilities by making it easier to create new recycling facilities through streamlined permitting processes and favorable local zoning rules. The following section provides an overview of federal laws governing composting facilities and then highlights best practices for permitting and zoning composting facilities with a focus on Maryland's permitting requirements and Ohio EPA's zoning guidance.

FEDERAL LAW

Several federal environmental laws, like the Clean Air Act and the Clean Water Act, potentially apply to the permitting and operation of composting facilities. The Clean Air Act may regulate composting and AD facilities as point sources of air pollution due to their potential to emit Volatile Organic Compounds (VOCs) and particulate matter.[25] Section 503 of the Clean Water Act covers land application, surface disposal, and combustion of biosolids (sewage sludge) as well as biosolids composting,[26] and these regulations establish pathogen and vector attraction reduction requirements and pollutant limits for biosolids recycling.[27] While these requirements do not technically apply to food scraps composting facilities, many states incorporate such federal requirements into their own regulations, including their regulations for facilities composting food scraps.[28] Both Clean Air Act and Clean Water Act permitting is typically delegated to the state, which means that facilities will work with state agencies to determine applicable requirements and apply for necessary permits.

MODEL STATE LAW

In addition to administering the above federal laws, each state typically implements its own requirements or regulations around composting, given the potential for composting to result in nuisances such as dust, odors, pests, or harmful stormwater runoff. Generally, a state's composting regulations require that a composting facility above a certain threshold register or obtain a permit or license prior to operating (typically a solid waste permit or a source-separated organics[29] composting permit).[30] Most often, composting permitting is managed by a state's environmental protection or natural resources agency.[31] Registration, permitting, or licensing requirements vary by state, and some states have more streamlined processes which makes it easier for composting facilities to open and operate.

In addition to obtaining a permit, composting and AD facilities must first locate a site that complies with zoning and siting requirements, which are managed at the local level.[32] Many jurisdictions do not treat composting facilities as a separate category and instead include them in solid waste land uses, which results in more burdensome requirements.[33] While zoning is managed at the local level, states can help facilitate favorable local zoning rules and provide assistance to localities that wish to update their zoning rules to allow more composting and AD facilities.

As states encourage more food scraps recycling or pass laws to prohibit landfilling food waste, there are crucial steps they can take to support composting and AD infrastructure through permitting and zoning processes. These best practices include:

- **Creating separate regulatory pathways for food scraps composting or AD:** States should have separate regulations and permitting pathways for food scraps composting and AD with clear language describing what is allowed. Regulations should streamline the process for composting source-separated organics, such as food scraps, and should be less onerous than regulations for the composting of riskier materials like mixed solid waste. This permitting pathway should treat AD of food waste similarly to the composting of source-separated organics including food waste. For example, Ohio has separate permitting tiers for source-separated organics as well as simplified permitting for facilities accepting food scraps.[34] North Carolina has a clear, separate permitting process for AD of food scraps.[35]
- **Implementing a tiered system for permitting and operational requirements**: Composting and anaerobic digestion facilities vary widely by their location, size, type of material composted or digested, and process used. It is crucial that states take these differences into account when developing a permitting process and use a tiered or graduated approach rather than a one-size fits all approach. For example, Idaho has three tiers of composting facilities depending on risk and the size of the facility.[36] In addition to the permitting process, operational requirements should vary by size and become more stringent as facilities get larger. For example, in North Carolina larger facilities have stricter requirements regarding depth and type of liner pad.[37]
- **Exempting small-scale and on-site facilities from permitting requirements:** To facilitate local composting efforts, states should exempt small-scale composting facilities, such as those located at community gardens or on smaller farms processing their own organics. For example, Ohio exempts from permitting re-

quirements any composting of yard trimmings or food scraps that is under 500 square feet.[38] Similarly, Iowa regulations allow facilities to accept two tons of food scraps and yard waste per week from off-site generators without a solid waste permit (though they still must comply with site and operational requirements).[39]

- **Facilitating favorable local zoning:** As noted above, many jurisdictions do not have separate zoning definitions for composting facilities. This significantly limits where they can be sited and increases the costs of opening a facility. However, localities are increasingly making composting-friendly zoning changes. For example, composting facilities are allowed in Cleveland's General Industry Districts if certain requirements are met.[40] While zoning is controlled at the local level, states can support more favorable zoning and siting for composting facilities by providing technical assistance. For example, the Ohio EPA published model zoning codes that local jurisdictions within the state can use to promote urban agriculture and composting.[41] States could also share model zoning ordinances, such as those from the U.S. Composting Council, and provide guidance to localities wishing to update their zoning policies for composting and AD facilities.[42] Lastly, states can use planning processes to promote development of composting infrastructure. Washington State's recently passed organic waste ban requires that counties develop and update their comprehensive solid waste management plans to identify priority areas within the county for composting or AD facilities.[43]

Maryland's system serves as a strong model for composting facilities permitting, as it incorporates many best practices listed above, including:

- **Creating separate permit and tiered requirements based on risk:** The Maryland Department of Environment updated its composting regulations in 2015, using the U.S. Composting Council's Model Compost Rule Template as a guide.[44] The Maryland regulations create a separate permit for source-separated organics composting, including food waste. There are three tiers of composting facilities depending on the pathogen risk of materials being composted (e.g., green waste, source-separated organics, biosolids), the amount of compost produced,[45] and siting and design criteria, such as compost pad requirements, which become increasingly restrictive from Tier One to Tier Three.[46]
- **Exempting small-scale operations:** The regulations also exempt small-scale composting operations, such as small-scale on-farm composting and sites under 5,000 square feet that accept yard waste and food scraps, from permitting.[47]

Because zoning is controlled on a local level, no state has legislation that directly addresses zoning issues associated with composting infrastructure. However, as noted above, states can provide guidance and technical assistance to localities to support the development of composting infrastructure, from small community sites to more industrial facilities. For model zoning codes and guidance, states can look to the Ohio EPA's guide to "Urban Agriculture, Composting and Zoning" which was developed after a thorough review of cities' current zoning ordinances as well as interviews with expert stakeholders.[48]

See Appendix H for model legislation around permitting composting facilities.

RECYCLING FOOD SCRAPS INTO ANIMAL FEED

INTRODUCTION

For centuries, using food scraps as animal feed has been common worldwide.[49] This practice has several environmental and economic benefits. Environmentally, diverting food scraps to animal feed is an extremely efficient method of recycling food waste and reducing methane emissions, so much so that it is the third rung on the EPA's food recovery hierarchy.[50] Economically, using food scraps for animal feed can result in lower costs for local and regional farmers as well reduced hauling and garbage disposal costs for participating households and food businesses.

Unfortunately, the practice of using food scraps as animal feed declined in the 1980s after federal and state laws regulating the practice were enacted to prevent diseases linked to animal feed, such as foot-and-mouth disease in swine and mad cow disease in cattle.[51] Today, federal regulations function as a regulatory floor, laying out minimum animal feed standards necessary to protect human and animal health. Many state requirements, however, go beyond this floor, and some are overly restrictive, needlessly banning the use of all food scraps as animal feed. Inconsistency among state laws also imposes conflicting requirements for interstate businesses, further adding to the challenge. These restrictive and conflicting state laws have contributed to a decline in the use of food scraps as animal feed.

Recently, there has been rising interest in the practice of using food that would otherwise go to waste as animal feed, as businesses increasingly view food scraps as an asset.[52] For example, Do Good Foods recycles food from grocery stores by taking surplus food that might otherwise be thrown away and processing it into high-quality feed for animals.[53] Similarly, Mill recycles household food scraps into animal feed by providing households a kitchen bin that dehydrates and compacts food scraps that Mill then processes into chicken feed.[54] The Do Good Foods and Mill models show that food by-products and food scraps unsuitable for human consumption can be used to develop new waste-to-feed solutions. Notably, in addition to reducing food in landfills, waste-to-feed solutions have the potential to reduce demand for traditional feed sources, such as corn and soy, which are a large driver of land conversion in key ecosystems including forests and grasslands.[55] When scaled, recycling food scraps into animal feed has the potential to reduce emissions associated with livestock production and financially benefit livestock producers who can increase their market advantage by using food scrap-derived animal feed.

To build on this renewed interest, state governments can modify their laws to encourage the practice on a wider scale. In addition, states can promote food scrap animal feed by providing educational resources and support to interested businesses, households, and farmers. Practical laws and regulations, accompanied by clear guidance, can help make feeding food scraps to animals a safe and common practice once again. The following section provides an overview of the federal law and regulation around feeding food scraps to animals and then highlights best practices for state laws.

FEDERAL LAW

Under federal law, food scraps can generally be fed to animals, with two notable restrictions. First, food scraps containing animal-derived byproducts must be heat-treated by a licensed facility before being fed to swine. Second, animal-derived byproducts cannot be fed to ruminants. The following federal statutes and regulations govern the feeding of food scraps to animals:

- **Swine Health Protection Act:** The Swine Health Protection Act (SHPA) aims to protect human and swine health by ensuring that food scraps fed to swine are free of diseases.[56] SHPA requires that food scraps containing animal meat or animal byproducts be heat-treated to 212° F for 30 minutes to kill disease-causing bacteria.[57] SHPA also includes licensing[58] and storage requirements for food scrap animal feed.[59]
- **The FDA's Bovine Spongiform Encephalopathy (BSE)/Ruminant Feed Ban Rule:** The Ruminant Feed Ban Rule prohibits the use of mammalian protein[60] in animal feed fed to ruminant animals, such as cows, sheep, goats, deer, elk, and antelopes.[61] The rule aims to reduce transmissible spongiform encephalopathy (TSE), a group of fatal neurological diseases that includes BSE.[62] The rule also creates compliance requirements for the processing, inspection, labeling, and record-tracking of animal feed products.[63]
- **The Food Safety Modernization Act Preventive Controls for Animal Food:** The 2011 Food Safety Modernization Act (FSMA) comprehensively reformed U.S. food safety laws, including those pertaining to animal feed.[64] The FSMA Preventive Controls for Animal Food Rule specifically focuses on feeding food scraps to animals.[65] The rule requires animal food processing facilities to implement necessary food safety controls.[66] FSMA includes exemptions for some facilities that hold and distribute human food byproducts for use as animal feed[67] and for farms and small or very small businesses.[68]
- **Regulations Regarding Labeling and Adulteration:** The Federal Food, Drug, and Cosmetic Act applies to animal feed as well as human food.[69] It prohibits animal feed that is misbranded,[70] adulterated (meaning filthy or decomposed), or packaged or held in unsanitary conditions.[71]

In sum, federal law requires people feeding food scraps to animals to:

- Heat treat food scraps containing any animal-derived products;
- Be licensed to heat treat animal-derived food scraps;
- Ensure mammalian protein is not fed to ruminant animals, and label all mammalian protein as unfit for consumption by ruminant animals;
- Properly record and track the processing and delivery of food scraps;
- Implement food safety controls in industrial food processing facilities of a certain scale; and
- Not feed adulterated food to animals.

MODEL STATE LAW

The federal laws and rules outlined above are sufficient to ensure livestock and human safety;[72] however, many state laws currently include more stringent requirements for recycling food scraps into animal feed, some of which predate the existing science-based federal scheme. Rather than

promulgate new laws to promote this practice, states typically need to amend and loosen their existing policies. Legislators should review their laws and regulations, remove overly restrictive requirements, and provide support and education to create a regime that encourages innovative models that safely recycle food scraps into animal feed, while still protecting animal and human health. Specifically, states should:

- **Eliminate any laws that ban the feeding of food scraps to animals:** If food scraps are properly handled according to applicable federal food safety laws and regulations, even animal-derived food scraps can become safe and beneficial feed for swine.[73] Because federal law already imposes safety requirements on food scraps recycled into animal feed, additional state regulations or bans are unnecessary. Alaska, for example, does not have any additional rules regulating the feeding of food scraps to animals, and neither does Utah since it repealed its ban on feeding food scraps to animals.[74]
- **Encourage state agencies to re-evaluate existing authority to support the development of facilities recycling food scraps into animal feed:** In addition to removing laws that openly prohibit organizations from turning food scraps into animal feed, the state should also remove legal barriers that make establishing food scrap animal feed facilities within the state excessively burdensome. Because the recent revival of recycling food scraps into animal feed is a new and innovative space, states may inadvertently impose regulatory requirements on food scrap animal feed facilities due to the lack of clarity in the law. For example, an organization that collects household food scraps and processes that organic material into animal feed might be classified as a waste facility under state law. However, because that organization is also classified as an animal feed facility, the organization may be subject to redundant regulation that makes the food scraps to animal feed model prohibitively expensive without any additional safety benefits. In this example, the state should exempt food scrap animal feed facilities from the waste facility requirements, so long as they satisfy the requirements imposed on animal feed facilities. States should encourage their agencies to reduce regulatory redundancies and support food scraps to animal feed models.
- **Eliminate requirements for heat-treating non-animal-derived scraps:** Several states require the heat treatment of non-animal derived food scraps; yet most non-animal derived food scraps are generally safe for use as feed without such treatment.[75] Requiring heat-treatment may discourage farms from feeding food scraps to animals, due to the associated costs. States should eliminate this requirement. For example, Connecticut law requires heat treatment for scraps containing meat or animal by-products but not non-animal derived scraps.[76] It also exempts household scraps fed to swine raised for personal use from heat treatment requirements.[77]
- **Replace the pejorative name "garbage" with a more neutral term such as "food scraps":** Both state and federal laws denote animal feed made with food scraps as "garbage feeding." This pejorative term implies the practice is dirty and unsafe and may discourage its adoption. States should use more positive terms such as "food scraps" or "food residuals" in legislation and guidance to refer to this safe and beneficial process.

- **Provide guidance and education on laws and regulations:** In addition to improving overly restrictive state laws, states can further encourage the feeding of food scraps to animals by providing educational resources and support to interested businesses and farmers. For example, California publishes a fact sheet in English and Spanish summarizing the requirements and benefits of feeding food scraps to swine.[78]
- **Encourage partnerships with local farms:** State governments can help facilitate food scrap animal feed partnerships by reaching out to local businesses and farmers to assess interest and by creating a centralized online repository for this information.
- **Provide funding to support recycling food scraps into animal feed:** State governments can provide funding for households and businesses that convert their food scraps into animal feed. For example, Massachusetts provided a grant to a brew pub and restaurant, Gardner Ale House, to better recycle their food waste, including diverting spent barley malt to a local pig farm.[79] This is part of the Massachusetts Department of Environmental Protection's efforts to curb food waste through its waste and recycling grants and assistance.[80] Additionally, New York adopted a food scraps hierarchy with tier three being repurposing food to feed animals along with an Environmental Protection Fund that gives grants to municipalities and generators to curb food waste.[81]

See Appendix I for model legislation around recycling food scraps into animal feed.

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 H: PERMITTING AND ZONING COMPOSTING FACILITIES

Section 1. Definitions

a. "Department" means [*insert relevant department*].

Section 2. Compost Zoning Regulations and Guidance for Municipal Governments

a. The Department shall promulgate regulations and guidance for municipal governments pertaining to compost zoning by [*insert reasonable date*]. These regulations and guidance shall:

   1. Create a separate regulatory pathway for food scraps;
   2. Implement a tiered system for permitting and operational requirements;
   3. Exempt small-scale and on-site facilities from permitting requirements;
   4. Facilitate favorable local zoning; and
   5. Ensure that permit requirements for solid waste, air, water, and other permit requirements as relevant are streamlined by centralization through one agency.

APPENDIX I: RECYCLING FOOD SCRAPS INTO ANIMAL FEED

Section 1. Definitions

a. "Department" means [*insert relevant department*].

b. For purposes of this section, "food scraps" means material derived from the processing or discarding of food, including pre- and post-consumer vegetables, fruits, grains, dairy products, and meats.*

**If your state has a definition of "garbage" when referring to the regulation of feeding food scraps to animals, replace it with the definition for "food scraps."*

Section 2. Guidance and Education

a. The Department shall encourage the feeding of food scraps to animals by promulgating guidance and educational resources by [*insert reasonable date*].

Section 3. Food Scraps to Animal Feed Program

a. The Department shall establish and oversee a Food Scraps to Animal Feed Program for local farms and businesses feeding food scraps to their animals. The program shall seek to facilitate food scrap animal feed partnerships by providing incentives and support, including, but not limited to, educational resources and a pilot program for collecting and delivering food scraps to local farms and businesses in partnership with local collection companies where possible.

b. The Department shall establish a central online repository displaying interested parties' information. The repository should include, but is not limited to, food waste generators who have food scraps to give away and animal feed facilities or farms that are seeking food scraps for their animals to consume.

Section 4. Removing Barriers to the Use of Food Scraps as Animal Feed

Include Section 4 if your state has regulations that exceed federal standards.

a. The Department shall by [*insert reasonable date*] eliminate regulations that exceed the federal rules governing the feeding of food scraps to animals found in the Swine Health Protection Act, codified at 7 U.S. Code § 3801; the FDA's Bovine Spongiform Encephalopathy (BSE)/Ruminant Feed Ban Rule, 21 C.F.R § 589.2000 (2016); the Food Safety Modernization Act, Public Law No. 111-353; and all federal regulations regarding labeling and adulteration.

b. The Department, in partnership with [*insert all other state departments that may regulate food and animal feed], shall by [insert reasonable date*] re-evaluate their existing regulatory authority under existing provisions of the law to eliminate regulatory redundancies that may impact the recycling of food scraps into animal feed, while ensuring the continued safety of animal feed according to the federal rules governing the feeding of food scraps to animals, as referenced in subsection a.

1. In carrying out the requirements of subsection b, the Department shall reasonably consult with organizations likely to be affected by the Food Scraps to Animal Feed Program and the modification of future regulations under subsection b.

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