FARM, RANCH, AND RURAL COMMUNITIES ADVISORY COMMITTEE
RECOMMENDATIONS TO
U.S. ENVIRONMENTAL PROTECTION AGENCY
ADMINISTRATOR MICHAEL S. REGAN
December 2021

America's farmers and ranchers provide food security for the U.S. and much of the world. Rural communities depend on a strong and resilient agricultural economy to thrive and provide basic services for those living in the heartland of America. Farmers and ranchers depend on healthy soil, clean water, and fresh air to produce food and fiber as a part of our national security. The U.S. Environmental Protection Agency's (EPA's) mission to protect human health and the environment aligns perfectly with the mission of American farmers and ranchers. We must have a healthy working relationship to achieve our respective missions. The Farm, Ranch, and Rural Communities Committee (FRRCC or Committee) is an excellent venue for EPA and the agriculture community to collaborate and develop productive working relationships.

I. BACKGROUND

The FRRCC is a Federal Advisory Committee originally chartered for two years by the EPA in 2008 and rechartered several times in the last 12 years. The current iteration of the Committee is chartered from February 2020-2022. The FRRCC provides policy advice, information, and recommendations to the EPA Administrator on a range of environmental issues of importance to agriculture and rural communities. The Committee is comprised of 32 members from across the U.S. representing academia, industry (producers, producer organizations and allied industries), non-governmental organizations, and state, local, and tribal governments. The COVID-19 pandemic delayed the Committee appointments until June 2020, and all committee activity to date has been in a virtual format. Nevertheless, the Committee and its ad hoc work groups have been very active, making substantial progress toward the goal of providing valuable advice to the EPA Administrator on the following charge topics:

- "Creating a Holistic Pesticide Program for the Future" - The questions asked included:
    - How can EPA better communicate with the American public about the Agency's holistic approach to pesticide management and improve the availability of information about the science-based process?
    - How can EPA reduce barriers to bringing crop protection tools to market while at the same time protecting the environment, natural resources, human health, as well as safeguarding pollinators and endangered species?

- "Supporting Inter-agency Environmental Benchmarks with Interagency Partners" - The questions asked included:
    - How can EPA facilitate the development of new technologies, practices, or market-based approaches to advance environmental goals around nutrient pollution, water reuse, and food loss and waste?
    - How can EPA coordinate with other agencies to better measure data and information regarding proactive measures that production agriculture and rural communities take; utilize or coordinate data from state, local, or federal level partners; leverage existing EPA programs; and support agriculture's and rural America's efforts in these areas?

In 2020, public meetings of the full FRRCC were held virtually on September 10-11 and November 12-13.

During the September 2020 public meeting, the Committee was given its charge and started discussion on the topics included therein. In the weeks following the first virtual meeting, Chairman Tom McDonald established three ad hoc work groups to address the following charge topics: water quality and quantity, pesticides, and food loss and waste. Chairs were appointed to lead each work group and Chairman McDonald provided each work group with a specific charge and a brief summary of the brainstorm session highlights from the September meeting. The work groups met regularly to learn additional information, hear from outside speakers, identify additional information needed, and discuss the charge topics to begin prioritizing areas of focus within the topics.

During the November 2020 public meeting, the ad hoc work group chairs reported progress on their charge topic, key speakers presented information requested by the groups, and the full committee deliberated each charge topic. Chairman McDonald also presented a tentative workplan and timeline to guide the future work of the Committee. The outlined upcoming activities included the establishment of a SharePoint site for the Committee (which was completed prior to year-end), identifying advice issues, and creating an initial draft advice letter from each ad hoc work group for full Committee discussion at the next meeting. The advice letters were to be continually refined over 2021, and the final recommendations of the FRRCC were to be presented to the EPA Administrator in December 2021 or January 2022.

In 2021, a public meeting of the full FRRCC was held virtually on November 15-16. During that meeting, the ad hoc work groups reported their progress, presented their proposed recommendations to the full Committee, and the full Committee deliberated and voted to forward a set of recommendations to Administrator Regan for his consideration and adoption.

II. FRRCC RECOMMENDATIONS TO ADMINISTRATOR REGAN

The FRRCC officially presents the following recommendations to Administrator Regan for his consideration and adoption. Please note that full documents are attached hereto as Exhibits 1 and 2 with additional information in the areas of water quality and quantity and food loss and food waste. FRRCC leadership looks forward to the opportunity to discuss the details of these recommendations with Administrator Regan.

A. Water Quality and Quantity Recommendations

1. Waters of the United States (WOTUS)

The FRRCC recommends EPA act on the following items:

i. Adhere to Clean Water Act (CWA) and relevant Supreme Court precedent. Important Supreme Court cases on this issue include *US v. Riverside Bayview Homes*, *Solid Waste Agency of Northern Cook County v. US Army Corps of Engineers*, and *Rapanos v. United States*. Together, the cases reinforce that Congress placed limits on the scope of federal jurisdiction under the CWA by using the term "navigable" and by recognizing, preserving, and protecting the primary responsibility and rights of states over land and water use and development. Any definition of WOTUS should be guided by these cases and should be limited to traditional navigable waters and territorial seas. Jurisdiction over non-navigable tributaries should be limited to those tributaries

containing clearly discernable physical features, as well as consistent flow into traditionally navigable waters. Any consideration for adjacency must be limited wetlands that directly abut WOTUS.

ii. Define WOTUS using clear terms that are easy to interpret and apply. The most important aspect of any definition of WOTUS is it must be easily interpreted by farmers, ranchers, and leaders of rural communities and interpreted with clear lines of jurisdiction. It is necessary that a new WOTUS rule avoid vague terminology that both landowners and regulators cannot apply without engaging in burdensome analyses. Accurate and current online, interactive tools should be considered for the purpose of mapping jurisdictional waters to provide as an informal guide to farmers, ranchers, and leaders of rural communities. Agency determinations, however, must be made in the field to ensure a holistic approach in arriving at an accurate determination and provide for adequate due process.

iii. Define jurisdictional features with an eye toward allowing farmers, ranchers, and rural communities the necessary flexibility to implement innovative environmentally beneficial projects that do not adversely impact the function or water quality of WOTUS.

iv. Retain exclusions that are critical to farmers, ranchers, and rural communities and recognized regional differences. Waters that do not fit into any of the jurisdictional categories within the new WOTUS rule should not be jurisdictional. There is, however, potential for misinterpretation and misapplication, so well-defined, clear exclusions are necessary for certainty and accurate and consistent implementation. The following exemptions are among the most important for farmers, ranchers, and rural communities:

a. Prior converted cropland (PCC) – PCC no longer exhibits defining characteristics of a wetland and no longer performs wetland functions, and thus, lands should not be considered WOTUS. The PCC definition included in the 2020 Rule codified the principle from the 1993 regulation. Farmers and ranchers nationwide have relied upon the PCC exclusion for decades, and as the agencies move forward with rulemakings, it must be retained as it was in the 2020 Rule.

b. Groundwater – EPA should continue to exclude groundwater in the text of the regulations.

c. Farm ditches, road ditches, canals, ponds, playas, stock ponds, prairie potholes and other isolated features – These are all features commonly found on farms and are used to collect, convey, or retain water for the purpose of agricultural use. Farmers and ranchers should not have the burden of proving the historical status of these features. That burden, instead, should be on the agencies.

d. Storm water detention, tail water recovery, or other environmentally beneficial practices should not be considered WOTUS.

e. Wastewater, reclaimed water, or recycle water systems should not be considered WOTUS.

v. In addition to the technical comments above, the FRRCC recommends to the agencies to reconsider the roundtable process. The agencies should retain previous public input processes to hear from the public to include all stakeholders. All parties should be allowed to provide public input and be heard equally. The FRRCC also wants to emphasize the importance of ensuring USDA is in lock step with the regulatory process surrounding WOTUS.

2. Ecosystems Management System (EMS)

The FRRCC recommends EPA act on the following items:

i. Seek a collaborative agreement with other agencies such as USDA and the Food and Drug Administration (FDA) to develop an EMS. It is the FRRCC's recommendation that USDA and EPA co-lead the development of EMS related to system development, practice implementation, etc., however EPA must be responsible for developing the aspects of an EMS for compliance with the federal environmental regulations (additional recommendations below). Additionally, it is important for FDA to be involved with this effort as livestock feed ingredients are approved by FDA. There is significant ongoing research on feed additives for reducing environmental impact. These feed additives show promise for reducing environmental impacts from livestock.

ii. Through the collaborative agreement mentioned above, develop a Federal Advisory Board (FAB) with a two-year minimum charter to advise EPA on developing an EMS. This FAB must contain a diverse cross section of representatives from academia, NGO's, local government, production agriculture, current market actors, and private industry.

iii. There are several specific items the FRRCC has identified as critical to ensuring the outcomes of an EMS are successful. These items would need to be considered by the FAB (as described above). In no order of importance, these items include:

   a. The primary objective of an EMS should be improvement our country's natural resources. It is imperative that any EMS program be developed such that farmers and ranchers receive a significant majority of the proceeds from a credit or incentive. An EMS should not be developed whereas service providers (e.g., verifiers, consultants, credit traders, etc.) receive most of the proceeds from an EMS.

   b. Current cost of soil sampling and laboratory analyses to measure/quantify soil carbon is laborious and expensive. EPA, in cooperation with National Academy of Science (NAS), USDA and FDA, should issue an innovation challenge to develop sensors capable of accurately tracking even minute soil carbon amounts and indicators of change in soil carbon before it is detectable and quantifiable.

   c. The FRRCC strongly recommends EPA develop specific guidance on the trade ratio to meet environmental assurance and enable EMS programs to commence. Some states have attempted to develop trading criteria, however one of the contentious issues is the trade ratio. For instance, does a permittee have to purchase 2, 5, or 10 pounds of phosphorus credits to receive a reduction of one pound against their NPDES permit limit?

d. The FRRCC recommends EPA support USDA, in the development of a list of proven conservation practices and quantify the environmental improvement of each practice. Farmers and ranchers investing in best management practices and/ or conservation practices to reduce emissions and practices should be managed under established standards such as Natural Resources Conservation Service (NRCS) practice standards. Farmers and ranchers should be provided regulatory and economic certainty, as well as purchasers should receive the same. Implementation of conservation programs should be designed to de-risk transaction costs for both the farmer / rancher, regulatory agency, and credit buyer in achievement of conservation goals.

e. GHGs have no geographic boundary and can be reduced, offset and/or traded globally, the same cannot be said for water quality which is generally addressed on a watershed level. EPA must consider how an EMS would affect transboundary watersheds. The FRRCC recommends EPA add guidance to the "Handbook for Developing Watershed Plans to Restore and Protect Our Waters" to encourage states and tribes with transboundary watersheds to develop a single Watershed Management Plan to ensure consistency of approach. We also recommend EPA provide guidance in the handbook for how states could collaborate to develop an EMS within the watershed.

f. The FRRCC recommends EPA collaborate with each state's water resources agencies and the USDA-NRCS to develop an EMS credit clearinghouse and verification program. Farmers trust their local conservation districts, watershed groups, and NRCS staff and would be more ready to work with a non-regulatory agency.

g. It is important to ensure any federal developed program not create redundancy where effective state programs already exist.

h. Farmers and ranchers who have already implemented improved practices should be retroactively compensated for early adoption. A payment for ecosystems services provided by the implementation of practices over time should be considered for those farmers / ranchers who proactively implement improved practices.

i. Consideration should be given to needed funding of agencies involved in to developing and implementing an EMS for EPA, USDA, FDA.

B. <u>Pesticide Recommendations</u>

1. How can EPA better communicate with the American public about the Agency's holistic approach to pesticide management and improve the availability of information about the science-based process?

The FRRCC recommends EPA act on the following items:

i. Develop and implement a robust, multi-media campaign to educate the American public about the framework EPA follows as part of their regular in-depth, science-based decision-making process to regulate pesticide products. Consider framing the messaging to connect the work and importance of the products to disinfectants and to agriculture's sustainability efforts

in the face of climate change. Such a campaign should include individual farmers and ranchers as the face of the effort. Information provided to the public through the campaign should be science and fact-based, and presented in a simple and straightforward manner.

ii. Strengthen EPA's fleet of embedded science communicators. A team of qualified individuals should be available within the Agency to facilitate two-way communication on pesticide-related issues with external stakeholders. Such communication should be science-based, but the approach should be one of listening, helping find answers, and potentially also assisting in convening stakeholders.

iii. Continue and/or increase EPA support of the National Pesticide Information Center (NPIC) to provide objective, science-based information about pesticides to the public. EPA should consider including all Land-Grant Universities/Extension (both Ag and Natural Resources and Family and Consumer Sciences) and state departments of agriculture across the country in the partnership. NPIC could create a training packet for representatives of Land-Grant Universities/Extension and state departments of agriculture to utilize for communication to the general public. Potential information would include registration and re-registration processes, risk and mitigation assessments, and use of pesticide products by various sectors of society. The Land-Grant Universities/Extension and state departments of agriculture representatives could also be trained in effective two-way communication on pesticide issues.

iv. Develop and implement a standard set of pesticide label information for a consumer audience with regards to household pesticide products. Benefits of the product should be included in addition to risks and use restrictions.

2. How can EPA reduce barriers to bringing crop protection tools to market while at the same time protecting the environment, natural resources, human health, as well as safeguarding pollinators and endangered species?

The FRRCC recommends EPA act on the following items:

i. Formalize farmer involvement in the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA) registration and re-registration processes by developing an advisory board of farmers and ranchers to seek and utilize farmer and rancher input to understand realistic usage rates and patterns (rather than potential), commodity timing needs and supply chain constraints, develop proposed risk assessments and risk mitigation decisions, and identify and mitigate potential risks to threatened and endangered species.

ii. Seek to establish a discussion group modeled after the Animal Agriculture Discussion Group that would facilitate open dialogue between EPA and farmers and ranchers with regard to crop protection tools. The venue could provide a forum for open discussion and strengthening relationships, with an emphasis on facilitating farm visits by EPA leadership and staff to allow for full understanding of the impact of EPA decisions on farmers and ranchers.

iii. Expeditiously implement strategies for EPA pesticide decisions to comply with the Endangered Species Act (ESA) in a manner that ensures protections of threatened and endangered species, and provides effective pest control tools through an efficient, transparent and predictable regulatory framework. The Administration and EPA should develop a multi-year work plan with

the focus of achieving holistic, long-term improvements to the ESA-FIFRA program. Interagency collaboration should be encouraged in an effort to identify and implement a more efficient process for EPA to consult with Fish and Wildlife Service and National Marine Fisheries Service on pesticide decisions under the ESA, and to work with USDA to determine how field data and conservation practices can inform mitigation measures for ESA pesticide consultations. EPA should create the formal farmer and rancher involvement and discussion group concepts listed above, and utilize them early in the FIFRA-ESA program. EPA should prioritize resources to mitigate pesticide effects on species most vulnerable to pesticides (e.g., species likely to receive an ESA "jeopardy" finding in a future pesticide consultation), as well as consider splitting the workload and process between products with only agricultural uses, and products with a mixture of agricultural and non-agricultural uses.

iv. Leverage the positive and productive work done by the agricultural community to date in implementing the Worker Protection Standards (WPS). EPA should explore the projects completed where the agricultural community developed culturally appropriate material in various languages and formats to reach individuals with the message of WPS. EPA should create an inventory of such resources, and spread those resources to the existing network of agricultural organizations involved in WPS implementation including Cooperative Extension, state departments of agriculture, trade associations, farmer groups, migrant health clinic network, agricultural non-profits, and education and community outreach groups. In doing so, EPA could take a leadership position to link all the efforts currently underway and leverage resources available in each state, tribal and local community, all while not causing unnecessary duplication of efforts.

v. Initiate a formal mechanism to allow for meaningful engagement with agricultural trade associations, farmer groups, and agricultural non-profits as EPA develops its regulatory approach and programming regarding WPS. Such meaningful engagement should include direct and regular communication directly from EPA WPS staff to the agricultural trade associations, farmer groups, and agricultural non-profits that the stakeholders of those groups receive the information in an accurate and timely fashion. The pending changes to the WPS provide the ideal opportunity for this effort to be tested and refined.

C. <u>Food Loss and Food Waste Recommendations</u>

1. EPA Actions

The FRRCC recommends EPA act on the following items:

i. EPA should adopt formal definitions of Agricultural Food Loss and Waste to guide future policymakers, farmers, ranchers, and other decision makers.

ii. EPA should have dedicated funding for its existing waste management departments for food waste management work.

iii. EPA should offer states and waste management operations guidance on creating waste management plans that call for separating and diverting food waste from landfills, as it does for other materials.

iv. EPA should look into streamlining pesticide approvals to increase the number of tools farmers have to produce high-quality food in a way that is economical and reduces food waste at the source.

2. Cross-Government Collaboration

The FRRCC recommends EPA act on the following items:

i. EPA should help ensure confusion over food safety rules do not pose a barrier to donation of safe surplus foods. To do this, EPA should promote and encourage FDA to adopt food safety guidance for food donation similar to the draft guidance recently published by USDA.

ii. EPA should work with USDA and FDA to aid those agencies in creating more cohesive and easily understandable regulations for date labeling.

iii. EPA should work with USDA to analyze how crop insurance policy impacts food waste.

iv. EPA should help federal agencies model food recovery practices by creating a system to track food recovery and donation across agencies, in keeping with the Federal Food Donation Act of 2008.

3. Financing

The FRRCC recommends EPA act on the following items:

i. EPA should increase food waste funding and incentives to farmers to support their infrastructure needs and incentivize food donation and recovery.

ii. EPA should support states and localities in their development of proven policies that address food waste prevention and food recovery, and should support development of food donation and recovery infrastructure and technology in underserved areas.

iii. EPA should help support the development of upcycled foods and the markets for upcycled foods.

4. Awareness, Education, Technical Assistance, and Research

The FRRCC recommends EPA act on the following items:

i. EPA should continue to update existing educational materials and build upon them to create tailored resources for other audiences, in addition to supporting waste management capacity development.

ii. EPA should support food waste reduction, food recovery, and food waste education in schools, either on its own or in partnership with USDA or the U.S. Department of Education.

iii. EPA should provide education and guidance to states on state laws regarding feeding food scraps and surplus to animals and livestock.

iv. EPA should promote the development of state and local strategies to market and divert food waste by publishing and publicizing information about the relative costs of waste management strategies.

v. EPA should provide model language and assistance to states in best practices for developing permits for composting and anaerobic digestion.

vi. EPA should conduct or support research on the opportunities and tensions related to the nexus between food waste and food packaging, to provide better insight into the best practices to reduce greenhouse gas emissions.

vii. EPA should create guidance and offer technical assistance for state reporting of food waste.

viii. EPA should support research about food waste and ways to reduce it.

III. SUMMARY

The FRRCC appreciates the EPA leadership, EPA career staff and outside experts that have met with the committee and informed the recommendations. While the recommendations were vigorously deliberated and debated among the committee, at the end of the discussion, there was consensus. We believe the recommendations are very important and relevant for farmers, ranchers and rural communities across the United States. Thank you for accepting our report and we are anxious to hear how EPA acts on the recommendations.

EXHIBIT 1

EPA Farm, Ranch, and Rural Communities Advisory Committee
Water Ad Hoc Work Group Recommendations

1. **In 2020, the Environmental Protection Agency (EPA) charged the Farm, Ranch and Rural Communities Federal Advisory Committee with the task advising on the way to support and facilitate inter-agency environmental benchmarks. Specifically, the purpose of this letter is to address the question of:**

As EPA supports these inter-agency environmental benchmarks, in what ways can EPA facilitate the development of new technologies, practices, or market-based approaches to advance environmental goals around nutrient pollution….?

U.S. farmers and ranchers have made tremendous strides to become more efficient and reduce environmental footprint and are poised to do so much more. For instance,

- Over the last 70 years, corn producers have improved nitrogen use efficiency by 73%. [1]
- Pork farmers produce a pound of pork with 25% less water than 50 years ago.[2]
- The U.S. has one of the lowest beef greenhouse gas (GHG) emissions intensities: 10–50 times lower than other parts of the world.[3]
- Conservation tillage increased 28% from 2012 to 2017.[4]
- Nationally, 91% of sorghum acres are rain fed saving 1.5 trillion gallons of water annually[5].

These are just a few examples of how farmers and ranchers have continued to become more sustainable while continuing to feed a growing population. Many farmers and ranchers, including small /medium sized and minority owned farms are struggling. Farmer and rancher debt in the U.S. exceeds $400 billion, according to USDA-ARS[6]. Additionally, in the 2017 Census, almost as many US farmers are 65 and older as younger than 55 (34% vs. 37%). In contrast, only 14% of self-employed US workers in nonagricultural businesses are 65 or older (US Department of Agriculture (USDA), Economic Research Service (ERS)). As evidenced by the data above, it is imperative that a system be developed to improve the security of our nation's food supply, protection of our natural resources, and considers equity and diversity.

FRRCC strongly encourages the EPA to work with USDA and other federal agencies to quantify the value of public goods and ecosystem services that can be provided and enhanced on agricultural landscapes and operations. Ecosystem services provided by agricultural and silviculture producers include soil conservation, carbon farming/sequestration, water quantity & quality benefits, habitat improvement, and water resource recharge. There are a variety of market mechanisms available to incentivize the

[1] https://www.purdue.edu/newsroom/releases/2019/Q3/study-highlights-nitrogen-efficiency-gains-in-corn-hybrids-over-70-years.html.
[2] https://www.thepigsite.com/articles/what-is-the-true-meaning-of-sustainability-in-us-pork-production
[3] Herrero, M., et al., 2013. Biomass use, production, feed efficiencies, and greenhouse gas emissions from global livestock systems. Proc. Natl. Acad. Sci. 110: 20888–20893.
[4] https://grains.org/about/the-councils-work/enabling-trade/sustainability/
[5] https://www.sorghumcheckoff.com/sorghum-sustains
[6] https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/assets-debt-and-wealth/#:~:text=Farm%20real%20estate%20debt%20is,total%20farm%20debt%20in%202020.

achievement of ecosystem services above and beyond those practices already being implemented by producers, such as an Ecosystems Management System (EMS).

It is important to note, that FRRCC is utilizing the term Ecosystems Management System, not Ecosystems Market System. This important distinction is rooted in the importance of a market versus management. The government's role should be to develop a system to which the rules are clearly defined for a free enterprise market to be developed. The FRRCC recommends EPA and other federal partners be responsible for developing a system to which credits can be generated, traded, and purchased. Just like other assets or commodities, a market should determine the price and structure of the market, not the government.

The suggested approach would not only provide benefits for the environment and climate, but will also offer the agricultural community an opportunity to create additional win-win revenue streams capable of reducing the ongoing economic challenges being faced through the entirety of the agricultural value chain. This approach would not only reduce environmental impact but also create a market for farmers to generate additional revenues that would help to abate the ongoing economic crisis for farmers and ranchers. Through ARS, the USDA has stated, "Agriculture could play a prominent role in U.S. efforts to address climate change if farms and ranches undertake activities that reduce greenhouse gas (GHG) emissions or remove greenhouse gases from the atmosphere."[7]

In addition to the benefits of an EMS improving farmer / rancher economics and reducing environmental footprint, an EMS would reduce the burden on small communities and industry. Farmers and ranchers can implement conservation practices in a more economical manner than costly wastewater treatment upgrades or certain emissions reduction technologies that provides comparable environmental benefits. Instead of these expensive upgrades, farmers and ranchers could be incentivized to implement practices to offset required Clean Water Act or Clean Air Act required upgrades on wastewater facilities or industrial facilities. To accomplish this monumental task, the FRRCC recommends EPA act on the following action items:

1. Seek a collaborative agreement with other agencies such as USDA and the Food and Drug Administration (FDA) to develop an EMS. It is the FRRCC's recommendation that USDA and EPA co-lead the development of EMS related to system development, practice implementation, etc., however EPA must be responsible for developing the aspects of an EMS for compliance with the federal environmental regulations (additional recommendations below). Additionally, it is important for FDA to be involved with this effort as livestock feed ingredients are approved by FDA. There is significant ongoing research on feed additives for reducing environmental impact. These feed additives show promise for reducing environmental impacts from livestock.

2. Through the collaborative agreement mentioned above, develop a Federal Advisory Board (FAB) with a two-year minimum charter to advise EPA on developing an EMS. This FAB must contain a diverse cross section of representatives from academia, NGO's, local government, production agriculture, current market actors, and private industry.

3. There are several specific items the FRRCC has identified as critical to ensuring the outcomes of an EMS are successful. These items would need to be considered by the FAB (as described above). In no order of importance, these items include:

[7] https://www.ers.usda.gov/webdocs/publications/42842/8494_eb15_1_.pdf?v=3209.1

a. The primary objective of an EMS should be improvement our country's natural resources. It is imperative that any EMS program be developed such that farmers and ranchers receive a significant majority of the proceeds from a credit or incentive. An EMS should not be developed whereas service providers (e.g., verifiers, consultants, credit traders, etc.) receive most of the proceeds from an EMS.

b. Current cost of soil sampling and laboratory analyses to measure/quantify soil carbon is laborious and expensive. EPA, in cooperation with National Academy of Science (NAS), USDA and FDA, should issue an innovation challenge to develop sensors capable of accurately tracking even minute soil carbon amounts and indicators of change in soil carbon before it is detectable and quantifiable.

c. The FRRCC strongly recommends EPA develop specific guidance on the trade ratio to meet environmental assurance and enable EMS programs to commence. Some states have attempted to develop trading criteria, however one of the contentious issues is the trade ratio. For instance, does a permittee have to purchase 2, 5, or 10 pounds of phosphorus credits to receive a reduction of one pound against their NPDES permit limit?

d. The FRRCC recommends EPA support USDA, in the development of a list of proven conservation practices and quantify the environmental improvement of each practice. Farmers and ranchers investing in best management practices and/ or conservation practices to reduce emissions and practices should be managed under established standards such as Natural Resources Conservation Service (NRCS) practice standards. Farmers and ranchers should be provided regulatory and economic certainty, as well as purchasers should receive the same. Implementation of conservation programs should be designed to de-risk transaction costs for both the farmer / rancher, regulatory agency, and credit buyer in achievement of conservation goals.

e. GHGs have no geographic boundary and can be reduced, offset and / or traded globally, the same cannot be said for water quality which is generally addressed on a watershed level. EPA must consider how an EMS would affect transboundary watersheds. The FRRCC recommends EPA add guidance to the "Handbook for Developing Watershed Plans to Restore and Protect Our Waters"[8] to encourage states and tribes with transboundary watersheds to develop a single Watershed Management Plan to ensure consistency of approach. We also recommend EPA provide guidance in the handbook for how states could collaborate to develop an EMS within the watershed.

f. The FRRCC recommends EPA collaborate with each state's water resources agencies and the USDA-Natural Resources Conservation Service (NRCS) to develop an EMS credit clearinghouse and verification program. Farmers trust their local conservation districts, watershed groups, and NRCS staff and would be more ready to work with a non-regulatory agency.

g. It is important to ensure any federal developed program not create redundancy where effective state programs already exist.

[8] https://www.epa.gov/sites/production/files/2015-09/documents/2008_04_18_nps_watershed_handbook_handbook-2.pdf

h. Farmers and ranchers who have already implemented improved practices should be retroactively compensated for early adoption. A payment for ecosystems services provided by the implementation of practices over time should be considered for those farmers / ranchers who proactively implement improved practices.

i. Consideration should be given to needed funding of agencies involved in to developing and implementing an EMS for EPA, USDA, FDA.

2. What recommendations does the FRRCC have for EPA in its endeavor to re-write the definition of "waters of the United States (WOTUS)"?

On June 9, 2021, EPA and the Department of the Army (the agencies) announced their intention to revise the definition of WOTUS. This process is envisioned to include two rulemakings: a foundational rule to restore longstanding protections, and an anticipated second rule that builds on that regulatory foundation. A clear and consistent definition of WOTUS is critically important to America's farmers, ranchers, and rural communities.

The evolution of the definition of WOTUS has been a source of confusion and concern for American agriculture for several decades. Within the timeframe of the 1986 rule implementation, the "significant nexus" test made the definition elusive as farmers and ranchers attempted unsuccessfully to prove otherwise against federal agencies who had already determined jurisdiction. Within the timeframe of the 2015 rule implementation, the agencies significantly expanded their interpretation of the jurisdictional authority provided under existing law. That system was neither beneficial for farmers and ranchers, nor the environment. Projects became even more complex, and delay was experienced on countless projects across the country, many of which would have meant additional conservation and water quality improvements. American agriculture appreciated the clarity the 2020 Navigable Waters Protection Rule (2020 Rule) provided. Many features were retained within federal jurisdiction, but it was workable for farmers, ranchers, and rural communities. Unfortunately, not much implementation was allowed to be realized before the agencies attempt to again rewrite the definition of WOTUS. Given that, the FRRCC recommends EPA take the following actions:

1. Adhere to Clean Water Act and relevant Supreme Court precedent. Important Supreme Court cases on this issue include US v. Riverside Bayview Homes, Solid Waste Agency of Northern Cook County v. US Army Corps of Engineers, and Rapanos v.United States. Together, the cases reinforce that Congress placed limits on the scope of federal jurisdiction under the Clean Water Act by using the term "navigable" and by recognizing, preserving, and protecting the primary responsibility and rights of states over land and water use and development. Any definition of WOTUS should be guided by these cases and should be limited to traditional navigable waters and territorial seas. Jurisdiction over non-navigable tributaries should be limited to those tributaries containing clearly discernable physical features, as well as consistent flow into traditionally navigable waters. Any consideration for adjacency must be limited wetlands that directly abut WOTUS.

2. Define WOTUS using clear terms that are easy to interpret and apply. The most important aspect of any definition of WOTUS is it must be easily interpreted by farmers, ranchers, and leaders of rural communities and interpreted with clear lines of jurisdiction. It is necessary that a new WOTUS rule avoid vague terminology that both landowners and regulators cannot apply without engaging in burdensome analyses. Accurate and current online, interactive tools should be considered for the purpose of mapping jurisdictional waters to provide as an informal guide to farmers, ranchers, and leaders of rural communities. Agency determinations, however, must be made in the field to ensure a holistic approach in arriving at an accurate determination and provide for adequate due process.

3. Define jurisdictional features with an eye toward allowing farmers, ranchers, and rural communities the necessary flexibility to implement innovative environmentally beneficial projects that do not adversely impact the function or water quality of WOTUS.

4. Retain exclusions that are critical to farmers, ranchers, and rural communities and recognized regional differences. Waters that do not fit into any of the jurisdictional categories within the new WOTUS rule should not be jurisdictional. There is, however, potential for misinterpretation and misapplication, so well-defined, clear exclusions are necessary for certainty and accurate and consistent implementation. The following exemptions are among the most important for farmers, ranchers, and rural communities:
    - Prior converted cropland (PCC) – PCC no longer exhibits defining characteristics of a wetland and no longer performs wetland functions, and thus, lands should not be considered WOTUS. The PCC definition included in the 2020 Rule codified the principle from the 1993 regulation. Farmers and ranchers nationwide have relied upon the PCC exclusion for decades, and as the agencies move forward with rulemakings, it must be retained as it was in the 2020 Rule.
    - Groundwater – EPA should continue to exclude groundwater in the text of the regulations.
    - Farm ditches, road ditches, canals, ponds, playas, stock ponds, prairie potholes and other isolated features – These are all features commonly found on farms and are used to collect, convey, or retain water for the purpose of agricultural use. Farmers and ranchers should not have the burden of proving the historical status of these features. That burden, instead, should be on the agencies.
    - Storm water detention, tail water recovery, or other environmentally beneficial practices should not be considered WOTUS.
    - Wastewater, reclaimed water, or recycle water systems should not be considered WOTUS.

In addition to the technical comments above, the FRRCC recommends to the agencies to reconsider the round table process. The agencies should retain previous public input processes to hear from the public to include all stakeholders. All parties should be allowed to provide public input and be heard equally. The FRRCC also wants to emphasize the importance of ensuring USDA is in lock step with the regulatory process surrounding WOTUS.

EXHIBIT 2

EPA Farm, Ranch, and Rural Communities Advisory Committee

Food Waste Ad Hoc Work Group Recommendations

I. Introduction

Each year, the United States generates a huge amount of food that goes uneaten or unsold—over 80 million tons, enough for 130 billion meals or around 2% of U.S. GDP.[1] Producing and disposing of this surplus food accounts for 4% of all U.S. greenhouse gas emissions, 14% of all U.S. water use, and 18% of all U.S. cropland use[2] and therefore exerts a tremendous environmental toll.

Although some of this food is donated or recycled, most is wasted. According to the U.S. Environmental Protection Agency (EPA), in 2018, over 63 million tons of food were wasted from the commercial, institutional, and residential sectors.[3] Of that amount, 11.9% was incinerated, and 55.9% was landfilled.[4] These numbers are particularly concerning when considering that nearly 11% of Americans were food insecure in 2019,[5] and due to the pandemic, that number has jumped to over 20%.[6]

In acknowledgment of these harms, EPA is working to reduce food waste throughout the United States. In 2015, EPA and the U.S. Department of Agriculture (USDA) announced a joint goal of cutting U.S. food loss and waste in half by 2030,[7] a measure that would bring the country into alignment with Target 12.3 of the United Nations Sustainable Development goals.[8] To implement this goal, EPA partnered with USDA and the U.S. Food and Drug Administration (FDA) to launch the *Federal Interagency Effort to Reduce Food Waste*.[9] The Initiative prioritizes interagency coordination, consumer education and

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[1] REFED, ROADMAP TO 2030: REDUCING U.S. FOOD WASTE BY 50% AND THE REFED INSIGHTS ENGINE AT-A-GLANCE 3 (2021), https://d1qmdf3vop2l07.cloudfront.net/brawny-garden.cloudvent.net/hash-store/a013dff6534d1409dcf3fe652a4691fc.pdf.

[2] REFED, ROADMAP TO 2030: REDUCING U.S. FOOD WASTE BY 50% AND THE REFED INSIGHTS ENGINE AT-A-GLANCE 3 (2021), https://d1qmdf3vop2l07.cloudfront.net/brawny-garden.cloudvent.net/hash-store/a013dff6534d1409dcf3fe652a4691fc.pdf.

[3] EPA, EPA 530-F-20-009, ADVANCING SUSTAINABLE MATERIALS MANAGEMENT: 2018 FACT SHEET 4 (2020), https://www.epa.gov/sites/production/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf.

[4] EPA, EPA 530-F-20-009, ADVANCING SUSTAINABLE MATERIALS MANAGEMENT: 2018 FACT SHEET 4 (2020), https://www.epa.gov/sites/production/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf. 4.1% was composted, and 28.1% was managed through another pathway (animal feed, bio-based materials/biochemical processing, codigestion/anaerobic digestion, donation, land application, or sewer/wastewater treatment). *Id.*

[5] ALISHA COLEMAN-JENSEN, MATTHEW P. RABBITT, CHRISTIAN A. GREGORY & ANITA SINGH, USDA ECON. RSCH. SERV., ERR-275, HOUSEHOLD FOOD SECURITY IN THE UNITED STATES IN 2019, at 4 (2020).

[6] Lauren Bauer, *Hungry at Thanksgiving: A Fall 2020 Update of Food Insecurity in the U.S.*, BROOKINGS INST. (Nov. 23, 2020), https://www.brookings.edu/blog/up-front/2020/11/23/hungry-at-thanksgiving-a-fall-2020-update-on-food-insecurity-in-the-u-s/.

[7] *United States 2030 Food Loss and Waste Reduction Goal*, EPA (Jan. 13, 2021), https://www.epa.gov/sustainable-management-food/united-states-2030-food-loss-and-waste-reduction-goal.

[8] G.A. Res. 70/1, at 22, Transforming Our World: The 2030 Agenda for Sustainable Development (Sept. 25, 2015).

[9] EPA, USDA & FDA, EPA 530-F-19-004, WINNING ON REDUCING FOOD WASTE: FY 2019-2020 FEDERAL INTERAGENCY Strategy (2019), https://www.epa.gov/sites/production/files/2019-08/documents/interagency_strategy_on_reducing_food_waste_final.pdf.

outreach, guidance on food loss and waste measurement, food safety and food donation information, public-private partnerships, and food waste reduction in federal agency facilities.[10]

The EPA Farm, Ranch, and Rural Communities Committee (FRRCC) was charged with examining EPA's role in preventing and mitigating food loss and waste on farms and in rural communities. In particular, the Committee was asked to consider how EPA could coordinate with other agencies to better use state, local, and federal data, leverage existing agency programs to facilitate food waste reduction, and develop new initiatives to combat food waste.

II. Summary of Working Group Deliberations

The FRRCC created an ad hoc Food Loss and Waste Working Group to develop recommendations in this area. In 2020, the Food Loss and Waste Working Group met three times and focused on developing the definition of "agricultural food loss and waste." The Working Group discussed food donation liability and tax incentives associated with donating or otherwise diverting food waste, as well as potential measures to divert food waste from landfills and incinerators to people in need and livestock feed or anaerobic digesters and composting operations. In 2021, the ad hoc Working Group transitioned to bi-weekly meetings from January through March and focused on combining recommendations into a draft report.

III. Main Observations and Insights

As a result of the last few months of research, the Food Loss and Waste Working Group has identified practices that could reduce food waste across the supply chain. Instead of going to the landfill or incinerator, surplus food could be donated to those in need, recovered for animal feed, or diverted to composting or anaerobic digestion. According to an analysis by ReFED, a leading national nonprofit working to reduce food loss and waste, investing $14 billion per year on food waste reduction could unlock $73 billion per year in economic value (a 5:1 return on investment).[11] As one example, a $103 million investment in a consumer food waste education campaign would lead to a financial gain of $6.08 billion.[12]

[10] EPA, USDA & FDA, EPA 530-F-19-004, WINNING ON REDUCING FOOD WASTE: FY 2019-2020 FEDERAL INTERAGENCY Strategy (2019), https://www.epa.gov/sites/production/files/2019-08/documents/interagency_strategy_on_reducing_food_waste_final.pdf.
[11] *ReFED*, https://refed.com/ (last visited Apr. 7, 2021).
[12] *Home Composting*, REFED INSIGHTS ENGINE, https://insights-engine.refed.com/solution-database/home-composting (last visited Apr. 7, 2021).

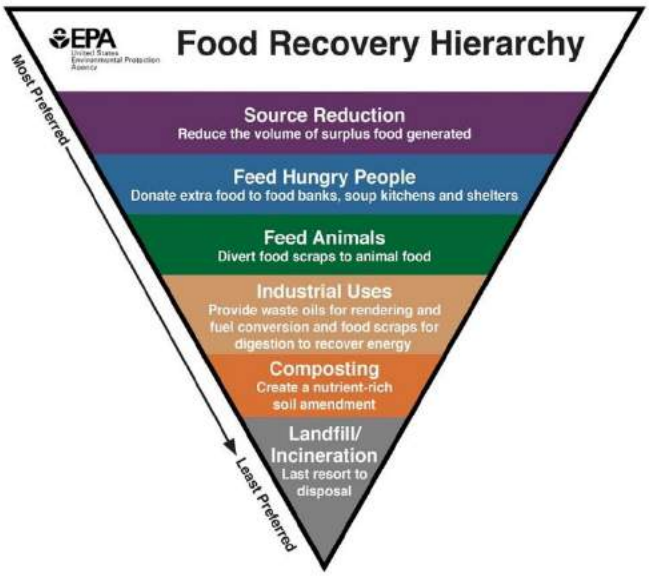

Figure 1: The EPA Food Recovery Hierarchy (source: https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy)

However, there are several major challenges to food loss and waste reduction for farmers, ranchers, and rural communities. First, the magnitude of the problem is unclear, as stakeholders disagree on how to define "food loss and waste" in the context of farming, and how the production or recovery of such waste should be managed. Other barriers to food donation include confusion about liability protection for food donors, which prevents stakeholders from donating excess food. The inconsistency of date labeling ("sell by," "best by," or "use by" labels) across states and industries further complicates food consumption and donation, making it unclear which foods are still safe for human consumption and which foods should be composted or diverted from the food supply. The distance of farms from those in need who could utilize surplus food, and the cost of transporting otherwise-salvageable food, prevents some farmers and ranchers from donating their excess supply. Confusing permitting rules and funding challenges also make on-farm composting or anaerobic digestion challenging, and generally limit the availability of these types of infrastructure. Finally, there is a lack of funding and federal programming for farmers and other stakeholders to commit to food waste reduction initiatives, and education about such initiatives is not readily available.

IV. Recommendations

The following recommendations represent the result of months of discussions, presentations, research, and deliberations by the Food Loss and Waste Working Group of the FRRCC. They are intended to provide EPA's Administrator and staff with a concrete set of actions that EPA could take to decrease the amount of food that is lost or wasted in the United State while also benefiting farmers, ranchers, and rural communities. The recommendations are not limited to these communities; they are envisioned as a set of national policies and activities that will significantly reduce food loss and waste across all parts of the food life cycle.

Furthermore, EPA, FDA, and USDA established the *Federal Interagency Effort to Reduce Food Waste*, which has been active for several years.[13] Policies impacting food waste are also implemented at the state and local level. The Food Loss and Waste Working Group recommends that EPA continue this interagency working group, and also work with state and local agencies, including state departments of agriculture, environment, and education, in creating policies and implementing programs to address

[13] *Winning on Reducing Food Waste Federal Interagency Strategy*, EPA (Jan. 26, 2021), https://www.epa.gov/sustainable-management-food/winning-reducing-food-waste-federal-interagency-strategy#p1.

food waste. It also encourages EPA to seek input and engage with the private sector to address this important issue. Each of the recommendations below will be enhanced with inclusion of these partners.

The recommendations are organized into four main groups: (A) actions EPA can independently take to reduce food waste; (B) opportunities EPA could pursue in combination with other federal agencies; (C) areas toward which EPA could direct additional funding; and (D) opportunities to build awareness, provide education and technical assistance, and promote research that addresses the food loss and waste issue.

A. EPA Actions

A1. EPA should adopt formal definitions of Agricultural Food Loss and Waste to guide future policymakers, farmers, ranchers, and other decision makers.

During the initial discussions of the ad hoc working group, it became clear that the group had no consensus definition of "food loss and waste" as it relates to agricultural production from which to examine the charge topic. ReFED, a leading national nonprofit working to reduce food loss and waste, writes that "[In] 2019, an enormous 35% of all food in the United States went unsold or uneaten. That's $408 billion worth of food – roughly 2% of U.S. GDP – with a greenhouse gas footprint equivalent to 4% of total U.S. GHG emissions. Most of this became food waste, which went straight to landfill, incineration, or down the drain, or was simply left in the fields to rot."[14] ReFED estimates that of that amount, roughly 13 million tons, or 17.2%, came from farm produce that was not harvested, and 3.63 million tons, or 4.5%, came from unused food applied to land.[15]

While there are many statistics on landfills and other waste destinations, and on post-consumer food loss and waste, it may be less clear to farmers and growers what parts of on-farm crop management constitute food loss or waste as opposed to regular, environmentally beneficial farm practices. We know that farms contribute to food loss and waste, but it is not currently clear to farmers and other producers what is included in these statistics, or even which practices could or should be used to reduce food loss and waste. For example, some practices that have the greatest on-farm environmental benefit may not be ones that minimize agricultural food loss or waste. EPA should be intentional when defining these terms.

The following definitions were developed by the Farm, Ranch and Rural Communities Food Waste Advisory Committee:

i. Agricultural Food Loss: The loss of agricultural products from the supply chain because such products are unsafe, undesirable, or unmarketable due to farming practices, manufacturing technology, marketability and/or profitability.
ii. Agricultural Food Waste: Agricultural products produced for human consumption which have nutritional value and are marketable but are discarded to a food waste destination such as a landfill and become a cost to society and/or the environment.

**Definitional Note*: Normal agricultural practices that intentionally utilize food or its byproducts to benefit the farm and/or the environment, such as for on-farm animal feed or for soil enhancement, should not be misconstrued as agricultural food loss or waste.

In order to educate and raise awareness among farmers and growers. EPA should consider formally adopting these definitions, or similar ones, that take into account the unique circumstances of on-farm and other agricultural food loss and waste. With this added context, farmers, ranchers, and others

[14] *Homepage*, REFED, https://refed.com/ (last visited Mar. 15, 2021). Source uses data from ReFED's Insights Engine and Food Waste Monitor.
[15] *Surplus Food Tons for the Year 2019*, REFED INSIGHTS ENGINE, https://insights-engine.refed.com/food-waste-monitor?break_by=destination&indicator=tons-surplus&view=detail&year=2019 (last visited Mar. 15, 2021). ReFED defines food applied to land as food that is "spread[], spray[ed], inject[ed], or incorporate[ed] . . . onto land to enhance soil quality." REFED, INSIGHTS ENGINE GLOSSARY 3, https://d1qmdf3vop2l07.cloudfront.net/strict-violin.cloudvent.net/hash-store/7d0e044d61127907795816d134af4e67.pdf.

looking to understand their contribution to food loss and waste or take steps to change will have a clear idea of the intended scope of the programs and how they apply to agricultural practices.

A2. EPA should have dedicated funding for its existing waste management departments for food waste management work.

Increasing funding for EPA (from Congress) or earmarking internal funding specifically for full time employees (FTEs) focused on food waste and projects directly related to food loss and waste, as well as organic waste management, can increase the capacity of EPA to tackle its food waste initiatives and help promote adoption of new initiatives to address the issue.

Currently, EPA food waste officials work to promote the Sustainable Management of Food within the Office of Resource Conservation and Recovery. The Office of Resource Conservation and Recovery is one part of the Office of Land and Emergency Management. It is focused on implementing the Resource Conservation and Recovery Act (RCRA).[16] EPA also undertakes international food waste reduction work, coordinating with different countries and other international stakeholders to develop food loss and waste management strategies. However, EPA has not received dedicated funding from Congress specific to staff or programming for its food loss and waste work.

By contrast, USDA has a position within the Office of the Chief Economist fully devoted to food loss and waste issues. USDA's model, created by Congress in the 2018 Farm Bill, establishes a single position of "Food Loss and Waste Liaison." The role is required to:

- "coordinate food loss and waste reduction efforts within the Department of Agriculture and with other Federal agencies, including the Environmental Protection Agency and the Food and Drug Administration;
- support and promote Federal programs to measure and reduce the incidence of food loss and waste and increase food recovery;
- provide information to, and serve as a resource for, entities engaged in food loss and waste reduction and food recovery, including information about the availability of, and eligibility requirements for, participation in Federal, State, local, and nongovernmental programs;
- raise awareness of the liability protections afforded under the Bill Emerson Good Samaritan Food Donation Act (42 U.S.C. 1791) to persons engaged in food loss and waste reduction and food recovery; and
- make recommendations with respect to expanding innovative food recovery models and reducing the incidence of food loss and waste."[17]

Congress provided funding for the position at $400,000 in 2019 and $500,000 in the 2020 appropriations cycle.[18]

By contrast, EPA does not have a dedicated office or position with funding from Congress, nor is there any dedicated funding for EPA's efforts (along with the USDA and FDA) on the *Federal Interagency Effort to Reduce Food Waste*. EPA could have an office or position with a similar set of general responsibilities, with the added goal to ensure environmentally friendly and sustainable practices are adopted across the waste management process. Dedicated funding could also support EPA's global efforts to coordinate on this issue.

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[16] *See* EPA, SUSTAINABLE MANAGEMENT OF FOOD (Feb. 24, 2021), https://www.epa.gov/sustainable-management-food.

[17] Agriculture Improvement Act of 2018, Pub. L. No. 115-334, § 12504, 132 Stat. 4490, 4987–88 (codified at 7 U.S.C. § 6924).

[18] Consolidated Appropriations Act, 2021, Division A: Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2021, H.R. 133, 116th Cong. (became Pub. L. No: 116-260, 134 Stat. 1182) (2020).

A3. EPA should offer states and waste management operations guidance on creating waste management plans that call for separating and diverting food waste from landfills, as it does for other materials.

EPA already recommends that states report on the contents of waste deposited in landfills and it has the authority to provide states with basic recycling and sorting guidelines.[19] EPA regulates the recycling and recovery of a number of hazardous and non-hazardous wastes by requiring states to build compliant solid waste management plans, which the states then enforce at the local level.[20]

Specifically, under the authority granted to it by RCRA, EPA requires states to create or adopt comprehensive solid waste management plans, and EPA sets criteria for plan approval.[21] EPA has created a standard federal plan, and states can choose to either use the federal plan or create their own state plan that complies with EPA's requirements and regulations if they wish. Only Hawaii and Iowa have not created their own plans. If a state declines to make their own plan, EPA's standard federal plan is used.

Even though approximately 22% of materials arriving to landfills in the United States are classified as food (loss or waste), the Solid Waste Management regulations under RCRA (40 C.F.R. § 246 *et seq.*)[22] do not provide guidelines for the recovery and marketing of food that is currently wasted but could be used by humans or livestock. 40 C.F.R. §§ 246, 247, 257, and 258 provide guidelines for a variety of other materials such as newspapers and cardboard to be recovered from the waste stream for source separation and classification, and provide other information that promotes the reuse, use, and marketing of these products. EPA also does not currently require states to submit data on landfill contents or usage to EPA.

EPA should include model guidance promoting programs for food reuse and recovery. In some communities, many of which are rural or agricultural in nature, programs have been developed for recycling and repurposing food and other organic wastes

EPA should use its authority over landfill waste management plans to encourage states to include guidelines for separation and diversion of food waste from landfills. RCRA is not the only authority for EPA to use the power of plan review and approval to add criteria to municipal solid waste landfill management. Recently, EPA published new rules under section 111(d) of the Clean Air Act[23] requiring states to develop plans for municipal solid waste landfills (MSWLF) to implement and enforce the 2016 MSWLF Emissions Guidelines.[24] These emissions guidelines speak specifically to the content of the waste being generated and focus on reducing the impact of landfills (and decomposing waste) on air quality.

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[19] *See*, *e.g.*, EPA, EPA 530-F-20-009, ADVANCING SUSTAINABLE MATERIALS MANAGEMENT: 2018 FACT SHEET (2020), https://www.epa.gov/sites/production/files/2020-11/documents/2018_ff_fact_sheet.pdf.

[20] *See*, *e.g.*, 40 C.F.R. § 246.201-1 (2019) ("Requirement: Separation of used newspapers at the source of residential generation in conjunction with separate collection shall be carried out at all facilities in which more than 500 families reside, and the newspapers shall be sold for the purpose of recycling.").

[21] *See Non-Hazardous Waste/Solid Waste*, EPA (Dec. 18, 2020), https://www.epa.gov/regulatory-information-topic/regulatory-information-topic-waste#solid.

[22] The regulations are based on sections 1008 and 6004 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. §§ 6907, 6964).

[23] 42 U.S.C. § 7411(d).

[24] Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction on or Before July 17, 2014, and Have Not Been Modified or Reconstructed Since July 17, 2014, 84 Fed. Reg. 43,745, 43,749 (proposed Aug. 22, 2019) (to be codified at 40 C.F.R. pt. 62).

They do this by forcing landfills to comply with New Source Performance Standards (NSPS) and Emissions Guidelines (EG) as appropriate and mandated under the Clean Air Act.[25] More information about the current status of those plans can be found on EPA's website.[26] EPA should continue to pursue these innovative means of addressing landfill content to encourage states to divert food waste from landfills, in addition to providing guidance on new food waste-specific programs that could be implemented by states.

EPA should develop a catalog of Supplemental Environmental Projects related to food waste management and recovery. When a landfill violates RCRA guidelines, EPA can initiate an enforcement action against it. In any resulting settlement agreement, EPA can encourage the violator to adopt a Supplemental Environmental Project (SEP), a project with environmental or public health benefits for the affected community that is related to the relevant violation but that goes beyond what law requires.[27] Frequently, the EPA staff who are negotiating with the violator are not aware of the range of possible SEPs that a violator could undertake. EPA should therefore develop a list of possible food waste-related SEPs that the agency's enforcement staff could present to RCRA violators in the negotiation process. Agreeing to an SEP means a violator would both reduce its settlement penalty and invest in the community, rather than simply forfeiting money to the U.S. Treasury.[28] Encouraging violators to use these opportunities as ways to invest in food waste reduction capacity could provide broad benefit.

[25] Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction on or Before July 17, 2014, and Have Not Been Modified or Reconstructed Since July 17, 2014, 84 Fed. Reg. 43,745, 43,749 (proposed Aug. 22, 2019) (to be codified at 40 C.F.R. pt. 62).
[26] *Municipal Solid Waste Landfills: New Source Performance Standards (NSPS), Emission Guidelines (EG) and Compliance Times*, EPA (Mar. 5, 2021), https://www.epa.gov/stationary-sources-air-pollution/municipal-solid-waste-landfills-new-source-performance-standards.
[27] *Supplemental Environmental Projects (SEPs)*, EPA (Feb. 10, 2021), https://www.epa.gov/enforcement/supplemental-environmental-projects-seps.
[28] EPA, 20-P-0131, EPA'S COMPLIANCE MONITORING ACTIVITIES, ENFORCEMENT ACTIONS, AND ENFORCEMENT RESULTS GENERALLY DECLINED FROM FISCAL YEARS 2006 THROUGH 2018, at 2 (2020), https://www.epa.gov/sites/production/files/2020-04/documents/_epaoig_20200331_20-p-0131_0.pdf.

A4. EPA should look into streamlining pesticide approvals to increase the number of tools farmers have to produce high-quality food in a way that is economical and reduces food waste at the source.

EPA should look into streamlining pesticide approvals for some products that are specifically designed to prevent the kinds of loss and waste that currently occur on farms. It is critical to maintain good communication between EPA, pesticide manufacturers, and farmers. Farmers rely on safe, effective pesticides; knowing before the growing season what tools are available allows for better planning and more efficient use of resources. Better communication can also prevent over-planting and other scenarios where otherwise edible and marketable food is removed from the food system because of aesthetic and harvesting issues that arise when pesticides do not function properly.

B. Cross-Government Collaboration

B1. EPA should help ensure confusion over food safety rules do not pose a barrier to donation of safe surplus foods. To do this, EPA should promote and encourage FDA to adopt food safety guidance for food donation similar to the draft guidance recently published by USDA.[29]

Food safety laws and the regulations developed by FDA and USDA generally do not mention the food safety practices that should be followed for food donations. This lack of guidance leads to confusion on the part of food businesses and potential donors as to what food can safely be donated. There also appear to be a range of inconsistent rules followed by different federal, state, and local food safety inspectors when it comes to food donations.

In December 2020, USDA issued draft guidance for meat and poultry establishments seeking to donate their products to nonprofit establishments. The initiative was part of USDA's commitment to the *Federal Interagency Effort to Reduce Food Waste*. For example, the USDA guide provides information on the following topics:

- Products eligible for donation;
- Products ineligible for donation;
- Shipping donated products;
- Labeling donated products;
- Donating products produced under inspection exemptions;
- Donation recipient types;
- Donating State-inspected products;
- Donating "expired" products;
- Relabeling at nonprofit organizations; and
- Retail exemption at nonprofit organizations.

USDA's guidance is particularly useful because it is written in a way that makes clear that the default rule is that all surplus meat and poultry should be eligible for donation, rather than having the default be that food cannot be donated. This approach tells interested parties to assume that food products are eligible for donation unless they are included in one of the few ineligible categories that will prevent unsafe food from being donated. However, the guidance is only relevant to meat and poultry slaughter and processing facilities because other businesses, including manufacturing facilities and farms, are regulated by FDA rather than USDA.

EPA should work with FDA to develop food donation guidance for businesses regulated by FDA, such as food manufacturers and farmers and ranchers, looking to donate excess food and agricultural products. Guidance from FDA would cover topics such as temperature, transportation, and labeling of donated foods, as well as any restrictions on certain foods that cannot be donated. FDA's jurisdiction includes farms under the Food Safety Modernization Act (FSMA) and FDA's FSMA Produce Safety Rule, and it is therefore helpful to have guidance from FDA on donations from farms. FDA also directly regulates food

[29] USDA FOOD SAFETY & INSPECTION SERV., FSIS GUIDELINE TO ASSIST WITH THE DONATION OF ELIGIBLE MEAT & POULTRY PRODUCTS TO NON-PROFIT ORGANIZATIONS (2020), https://www.fsis.usda.gov/sites/default/files/media_file/2021-01/FSIS-Guideline-Food-Donation.pdf.

facilities that process most foods other than meat and poultry, meaning FDA guidance would be relevant to donations from all of those facilities.

EPA should also work with FDA to develop new model guidance for state food safety rules related to food donation. The FDA Food Code provides the current model guidance for all state-level food safety rules, yet the Food Code does not include any safety information for food donations. While the FDA Food Code is not binding law, state food safety laws, which cover restaurants and retail stores, are based on the FDA Food Code. A survey of state food safety officials in all fifty states found that most states do not have any laws, regulations, or guidance that address food safety for food donation.[30] The vast majority of state food safety officials surveyed believe that model language would be a helpful resource to support states in creating guidance on food safety for food donations.[31] EPA could work with FDA to build on the FDA Food Code or to create other guidance for restaurants and retail that includes safety guidance for food donations.

EPA should work with FDA and USDA to include guidance on the liability protections available to food donors in their guidance on food safety for donations. Liability protection is federally offered to all food donation under the Bill Emerson Good Samaritan Food Donation Act.[32] Despite the existence of this federal protection, many farms and food businesses report not donating because of fear that they may be liable if a food donation recipient gets sick from the donated food. The USDA guidance for donation of meat and poultry could be strengthened by including information about the liability protections available to all food donors and nonprofit food recovery intermediaries. Any FDA guidance on food safety for donations should also include information about such liability protections. EPA can also take any opportunities to help spread awareness about this comprehensive liability protection for food donations.

[30] EMILY BROAD LEIB ET AL., HARVARD L. SCH. FOOD L. & POL'Y CLINIC, FOOD SAFETY REGULATIONS & GUIDANCE FOR FOOD DONATIONS: A FIFTY-STATE SURVEY OF STATE PRACTICES 7–8 (2018), https://www.chlpi.org/wp-content/uploads/2013/12/50-State-Food-Regs_March-2018_V2.pdf.
[31] EMILY BROAD LEIB ET AL., HARVARD L. SCH. FOOD L. & POL'Y CLINIC, FOOD SAFETY REGULATIONS & GUIDANCE FOR FOOD DONATIONS: A FIFTY-STATE SURVEY OF STATE PRACTICES 9 (2018), https://www.chlpi.org/wp-content/uploads/2013/12/50-State-Food-Regs_March-2018_V2.pdf.
[32] 42 U.S.C. § 1791(c).

B2. EPA should work with USDA and FDA to aid those agencies in creating more cohesive and easily understandable regulations for date labeling.

There is currently no mandatory federal law regulating date labels (such as "sell by," "best by," or "use by") on food products.[33] Absent federal law, states often require or regulate date labels on different food products, and manufacturers also use various terms on different foods. However, for the large majority of foods, the label is used to indicate quality or freshness, and most foods do not increase in safety risk past the indicated date. Yet due to confusion over date label meanings, many producers, consumers, and commercial food sellers throw out food that is perfectly safe for human consumption but lists an expired date. This results in millions of tons of landfilled food waste per year.

EPA should work with USDA and FDA to publish clear, cohesive regulations and guidance to standardize date labels for foods sold to consumers in the United States. Standardizing and clarifying date labels was found by ReFED to be the single most cost-effective policy for reducing food waste, with the potential to provide over $2.4 billion in economic value to the country.[34] Such a policy would require food businesses to use one standard label to indicate when food quality is best by, and a different standard label to indicate when food consumption risk may increase. Standard labels could be required by Congress, or FDA and USDA could collaborate to promulgate regulations that require standard labels across the food products that each agency regulates.

EPA could facilitate or gather input for this process or provide guidance on the current date labeling rules for stakeholders at all levels of the food supply chain. Because "best by" and other date labels can influence whether consumers throw out food, ensuring these labels are clearer and educating food producers, retailers, and consumers about their meaning could significantly reduce food waste. EPA, USDA, and FDA also can work with farmers and ranchers to develop guidance for best practices for using date labels on agricultural products.

[33] *See, e.g.*, *United States: Food Safety for Donations*, THE GLOB. FOOD DONATION POL'Y ATLAS, https://atlas.foodbanking.org/atlas.html (last visited Mar. 21, 2021).
[34] *Standardized Date Labels*, REFED INSIGHTS ENGINE, https://insights-engine.refed.com/solution-database/standardized-date-labels (last visited Mar. 21, 2021).

B3. EPA should work with USDA to analyze how crop insurance policy impacts food waste.

Most crop acres in the United States are covered by crop insurance, which is managed by USDA's Risk Management Agency (RMA). RMA offers insurance through approved private insurers, which sell and service policies that pay farmers when bad weather or other incidents damage their crops.[35] In order to qualify for an insurance payout, farmers cannot harvest and sell their crops once damage is reported, even if some crops are salvageable. RMA does, however, encourage insurers to allow gleaning, the practice of collecting crops from fields where it is not economically profitable to harvest and donating those crops to a charitable organization.[36]

EPA should work with USDA to see if additional changes are needed to promote salvage and donation or sale of covered crops. Even though RMA supports gleaning, it is unclear whether all insurance policies allow this practice, or whether farmers must comply with burdensome gleaning requirements in order to receive insurance payouts. Furthermore, gleaning policy does not allow farmers to collect salvageable crops and sell them as lesser products, with insurers making up the difference in price. EPA should work with USDA to analyze how current crop insurance policy impacts food waste, publicize the fact that RMA allows gleaning, and conduct a study on whether it is feasible for insurers to allow a lower payout to farmers who sell salvaged crops at lower prices than initially anticipated.

[35] *Public-Private Partnerships*, USDA RISK MGMT. AGENCY, https://www.rma.usda.gov/en/News-Room/Continuing-Interest/Public-Private-Partnerships (last visited Apr. 10, 2021).
[36] USDA RISK MGMT. AGENCY, GLEANING CROPS (2017), https://www.rma.usda.gov/en/Fact-Sheets/National-Fact-Sheets/Gleaning-Crops.

B4. EPA should help federal agencies model food recovery practices by creating a system to track food recovery and donation across agencies, in keeping with the Federal Food Donation Act of 2008.

The Federal Food Donation Act of 2008[37] was enacted to encourage federal agencies that have contracts for food services or sale to donate or ask their contractors to donate excess food to nonprofits. However, the Act merely encourages—rather than requires—agencies and their contractors to donate. There is also no monitoring or reporting required to keep track of food waste recovery or donation conducted by federal agencies. Thus, even though it has been thirteen years since the law was enacted, most agencies and their contractors do not frequently donate surplus food, and there is no data to determine whether such donation is increasing over time.

EPA should coordinate all agency reporting on food wasted or recovered by federal agencies as they seek to comply with the 2008 Federal Food Donation Act. EPA is the right agency to develop a reporting system to track progress over time by agencies and their subcontractors in donating safe surplus food. Analysis of reported data could provide insights into best practices for agencies to donate their surplus food and could be a useful way to monitor and report on their compliance with the Act. Agencies should treat food waste reduction, donation, and recovery analogous to recycling and composting at federal facilities.

Tracking food waste and food donation can help to increase donation. Studies show that measuring food waste by businesses or households is one of the most effective ways to help those entities to reduce their waste. EPA is already a leader in food waste monitoring and reporting across the country;[38] adding donation monitoring to the existing reporting structure at EPA and developing a reporting structure for other federal agencies to use could provide a more holistic picture of food loss and waste management. Modeling donation behavior and sharing the results of federal efforts could help educate communities around the country looking to make a difference by donating and by decreasing their food waste footprint.

[37] Pub. L. No. 110-247, 122 Stat. 2314 (codified at 42 U.S.C. §§ 1791 to 1792).
[38] *See*, *e.g.*, Kaitlin Bradshaw, ***U****sing Measurement Tools to Reduce Food Waste and Drive Prevention*, WASTE360 (Sept. 17, 2020), https://www.waste360.com/food-waste/using-measurement-tools-reduce-food-waste-and-drive-prevention.

C. Financing

C1. EPA should increase food waste funding and incentives to farmers to support their infrastructure needs and incentivize food donation and recovery.

EPA should encourage the adoption of on-farm anaerobic digesters and fund research and innovation in digester technologies. Using the anaerobic digestion process, farms can convert food waste to valuable renewable natural gas and organic fertilizer, but they need funding to support the infrastructure development. Funding is required both to advance digester technology, which is still in its infancy in the United States, and to subsidize widespread use of digesters on farms, which can prove expensive. Even in areas where communities and farms successfully use anaerobic digesters, a number of these digesters cannot process food waste as an input (they can only process other feedstocks or manure), and thus represent a lost opportunity for food waste reduction that EPA should work to remedy.

EPA already offers farmers some support for the use of anaerobic digesters, but it could do more. For example, EPA's AgStar program currently offers technical guidance on the use of digesters to process manure,[39] but EPA could expand this guidance to encompass on-farm food waste or food waste from off-farm, and offer loans or grants to farms that want to pursue anaerobic digestion opportunities. Since 2019, EPA has provided funds to support demonstration of community anaerobic digester applications, offering up to $3 million in funding in the 2020 cycle.[40] This funding is a step in the right direction, but it is not enough to scale up anaerobic digestion, and it is not targeted at farms. EPA on its own or with additional dedicated funds from Congress should consider expanding this program and specifically setting aside money for the use of anaerobic digesters for on-farm food waste. In designing or expanding any loan or grant programs, EPA should offer grants that encourage innovation in both nutrient recovery and processing efficiency.

EPA should also encourage the use of anaerobic digesters by compensating farmers that use this technology. Farms save municipalities money and provide a public good when they accept food waste that otherwise would have been sent to landfills or incinerated. Any money saved from food waste diverted to farms for anaerobic digestion should accrue to the farmers to cover the cost of storing and processing food waste. EPA can facilitate this exchange by (1) offering states and localities guidance on how to quantify the cost savings associated with food waste diversion and (2) suggesting that states and localities give this money to farms that receive food waste and use best management practices to process and convert this waste into useful products like biogas and nutrients. In providing guidance on how to allocate costs saved through food waste diversion to farms, EPA should be mindful that it costs farms money not only to process food waste, but also to manage the products of digestion—like nutrients—after processing.

EPA should provide funding to farmers to help them manage food recovery operations, either alone or in concert with other nearby farms. Farmers are eager to reduce food waste through practices like food donation, but they need financial support to accomplish this goal. Harvesting, storing, transporting, and labeling food intended for donation is expensive, requiring time, effort, and money on the part of

[39] *Learning About Biogas Recovery*, EPA (Jan. 14, 2021), https://www.epa.gov/agstar/learning-about-biogas-recovery.

[40] *Sustainable Materials Management 2020 Anaerobic Digestion Funding Opportunity*, EPA (Sept. 29, 2020), https://www.epa.gov/sustainable-management-food/sustainable-materials-management-2020-anaerobic-digestion-funding; EPA, EPA-OLEM-ORCR-20-02, SUPPORTING ANAEROBIC DIGESTION IN COMMUNITIES REQUEST FOR APPLICATIONS (2020), https://www.epa.gov/sites/production/files/2020-05/documents/20-02.pdf.

farmers. A number of farms already receive assistance from USDA, which offers loans to farmers for the creation and maintenance of on-farm storage facilities.[41] EPA should build on this program's success by offering loan or grant funding to farms that need assistance with harvesting, processing, and transporting food for donation. EPA could adopt a model like USDA's Environmental Quality Incentives Program (EQIP), which allows farmers to choose conservation measures that make sense for them from a menu of options and then reimburses part of the selected measures' costs.[42] In particular, farmers could use assistance with cold storage, which is necessary to preserve many types of food but which is expensive for farmers to purchase and maintain.

EPA should encourage Congress to create a tax credit for farmers for the donation of surplus food. Tax incentives can motivate desired behavior. The right tax incentives could cause farmers to donate their excess food instead of disposing of it. Businesses, including farms, are already eligible to claim an enhanced tax deduction for donating food: they can "deduct the lesser of (a) twice the basis value of the donated food or (b) the basis value of the donated food plus one-half of the food's expected profit margin."[43] However, farmers rarely use this deduction. First, many farms generate no net farm income, so they do not significantly benefit from a deduction.[44] Further, the amount of the deduction is difficult and time-consuming for farmers to calculate. As a result of these challenges, many farms—even those that donate food—forego claiming the deduction. A tax credit, as opposed to a deduction, could more directly benefit farmers. Unlike a tax deduction, which only reduces how much income is subject to taxation, a tax credit reduces the actual amount of tax due. EPA should encourage Congress to pass a tax credit specifically aimed at agricultural food donation, which would incentivize farmers to donate food that is safe and surplus. A dozen states already offer similar credits at the state level. This food donation tax credit should be an alternative that farmers alone can opt to claim, rather than claiming the enhanced deduction for food donation that most other food businesses utilize.

[41] *Farm Storage Facility Loan Program*, USDA, https://www.fsa.usda.gov/programs-and-services/price-support/facility-loans/farm-storage/ (last visited Feb. 19, 2021).
[42] *Environmental Quality Incentives Program*, USDA, https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/ (last visited Mar. 13, 2021).
[43] *U.S. Food Waste Policy Finder: Federal Tax Incentives*, REFED (Feb. 2, 2021), https://policyfinder.refed.com/federal-policy/federal-tax-incentives; *see also* 26 U.S.C. § 170(e)(3)(C).
[44] NATHAN ROSENBERG, NAT. RES. DEF. COUNCIL, ADDRESSING FOOD WASTE AND INCREASING FOOD DONATION THROUGH THE NEW YORK FARM TO FOOD BANK TAX CREDIT 7 (2019), https://www.nrdc.org/sites/default/files/new-york-farm-to-food-bank-tax-credit-report.pdf.

C2. EPA should support states and localities in their development of proven policies that address food waste prevention and food recovery, and should support development of food donation and recovery infrastructure and technology in underserved areas.

EPA should provide support to states and localities that have or wish to develop organic waste bans or waste diversion requirements within their state organic waste plans or municipal solid waste plans. Organic waste bans limit the amount of food waste or organic waste that individuals or businesses can dispose of in landfills. Diversion requirements obligate individuals or businesses to direct organic waste to a service that composts the waste or processes it using an anaerobic digester. As of 2019, six states and a number of cities already enacted some type of organic waste ban or diversion requirement.[45] The data that exists about the results of these types of laws is promising. For example, a study of the Massachusetts organic waste ban found that the law increased the amount of organic waste processed by a factor of six to eight and that the amount of food donated or rescued increased by 22%.[46] The Massachusetts organic waste ban also had a positive economic impact, causing employment growth in the organic waste industry (according to the report, it added 500 new jobs and sustained 900 jobs). Additionally, by making food waste management more economically valuable, organic waste bans or diversion requirements could produce more demand for anaerobic digestion or composting, helping to support the investment in this infrastructure—this could, in particular, benefit farms that are able to build infrastructure to compost or digest food waste from the local community.

Enacting an organic waste ban or diversion requirement requires thoughtful planning on the part of government actors. In deciding what policy to adopt, a state or municipality must account for, among other things, infrastructure needs, enforcement ability, and political and financial realities.[47] Because these policies are so promising but require so much planning and infrastructure, as well as local considerations, EPA should offer states and municipalities funding and technical assistance to both plan and implement these types of policies.

EPA should provide funding to states and localities, particularly rural areas, to develop food waste reduction plans. States and municipalities are largely responsible for regulating their own municipal waste systems, but EPA can help them make smart choices. Since 2018, Congress has provided funding to USDA to support food waste reduction plans in urban areas (in the Compost and Food Waste Reduction pilot programs under the Urban Agriculture Office),[48] but EPA could look at opportunities to implement a similar program in rural areas.

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[45] KATIE SANDSON & EMILY BROAD LEIB, BANS AND BEYOND: DESIGNING AND IMPLEMENTING ORGANIC WASTE BANS AND MANDATORY ORGANICS RECYCLING LAWS 3 (2019), https://www.chlpi.org/wp-content/uploads/2013/12/Organic-Waste-Bans_FINAL-compressed.pdf.

[46] KATIE SANDSON & EMILY BROAD LEIB, BANS AND BEYOND: DESIGNING AND IMPLEMENTING ORGANIC WASTE BANS AND MANDATORY ORGANICS RECYCLING LAWS 18 (2019), https://www.chlpi.org/wp-content/uploads/2013/12/Organic-Waste-Bans_FINAL-compressed.pdf.

[47] *See* KATIE SANDSON & EMILY BROAD LEIB, BANS AND BEYOND: DESIGNING AND IMPLEMENTING ORGANIC WASTE BANS AND MANDATORY ORGANICS RECYCLING LAWS 24–29 (2019), https://www.chlpi.org/wp-content/uploads/2013/12/Organic-Waste-Bans_FINAL-compressed.pdf.

[48] Press Release, USDA, USDA Announces Cooperative Agreements for Community Compost and Food Waste Reduction (May 11, 2020), https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/releases/?cid=NRCSEPRD1583831.

EPA should leverage its existing knowledge on the exact location of food donation and recovery facilities to target food recovery funding to under-served areas. EPA's Excess Food Opportunities Map[27] is a useful resource that shows facilities around the country where food can be donated or recovered, such as through composting or anaerobic digestion. The map was created to make it easier for farmers and businesses to identify locations to divert food, it also can serve as a useful tool for EPA and other governmental agencies to identify areas with gaps in food recovery infrastructure. EPA or other agencies could use the map to identify geographic areas lacking in food recovery facilities, and direct funding or resources to those regions. This would help to develop more food banks, food rescue operations, and composting and anaerobic digestion capacity in underserved areas, particularly, rural areas.

EPA should offer funding to partners to develop technology that facilitates connections for food donations. Recent years have seen the development of websites and apps that connect donors to food recovery organizations within a geographic area. EPA could use funding to support the development of new technology or expansion of promising technology. To allocate funding for this type of technology development, EPA should consider sponsoring a challenge in which app developers compete for prize money. The agency regularly uses these types of technology challenges to encourage innovation and engage communities.[49] EPA could also focus support to targeted geographic areas.

[49] *See Challenges & Prizes*, EPA (Feb. 17, 2021), https://www.epa.gov/innovation/challenges-prizes.

C3. EPA should help support the development of upcycled foods and the markets for upcycled foods.

Upcycled food is a growing sector of the economy that looks to find new, environmentally beneficial uses for discarded food products. According to the Upcycled Food Association, "[u]pcycled foods use ingredients that otherwise would not have gone to human consumption, are procured and produced using verifiable supply chains, and have a positive impact on the environment."[50] Creating new food products out of surplus food, unmarketable food, and even inedible food byproducts requires funding for research and development of new products, as well as marketing to consumers to describe the benefits of foods that would otherwise have gone to waste. However, keeping these ingredients in the human food supply chain is aligned with the EPA Food Recovery Hierarchy, and also can produce new markets and new economic value. These products can especially support farmers, as they could develop a market for inedible parts or for produce that is imperfect or otherwise not sold into markets.

EPA should provide funding for the development of upcycled foods. EPA can offer funding to businesses and organizations experimenting with opportunities to make new products out of upcycled ingredients. This can help drive more development of products using this beneficial practice. In particular, funding can support development of new products using previously inedible byproducts, which can lead to net efficiency gains in the food system.

EPA should offer priority for use of upcycled ingredients in its procurement criteria and should encourage other agencies to do the same. EPA can help build a market for upcycled products to support their utilization. In addition, new education initiatives that talk about food waste should incorporate upcycling into their messaging to increase public awareness of these products. Reducing food loss and waste will require a wide variety of solutions, and upcycling food is one of these innovative options that EPA can promote and support.

[50] *What is Upcycled Food?*, UPCYCLED FOOD ASS'N, https://www.upcycledfood.org/what-is-upcycled-food (last visited Mar. 21, 2021).

D. Awareness, Education, Technical Assistance, and Research

D1. EPA should continue to update existing educational materials and build upon them to create tailored resources for other audiences, in addition to supporting waste management capacity development.

Meaningfully reducing food waste requires building knowledge and community capacity. Nationally, the majority of food waste occurs in households, and as such, no large-scale food waste strategy will succeed without extensive outreach and education. EPA currently offers a number of educational materials related to food waste reduction. For example, EPA has a "Food: Too Good to Waste"[51] resource designed to implement a local campaign to reduce household-level food waste. The resource includes a toolkit and implementation guide for local governments and community organizations to help households make progress.

In order to spread awareness about the importance of food waste reduction, EPA should continue to update its educational materials and build on them to offer resources specifically designed to address the needs of specific stakeholders and communities. EPA could build upon "Food: Too Good to Waste" by publishing a similar resource specifically designed for farmers who want to reduce food waste.

To further publicize the issue of food waste, EPA should work to develop a National Consumer Awareness Campaign for Food Waste Reduction. In the United States, residential consumers generate more food waste than any other sector.[52] According to ReFED, consumer education campaigns are one of the most cost-effective ways to reduce food waste. This is because often families do not realize how much they are wasting, and once they learn about this is issue they find food waste reduction to be an opportunity for sustainability and also to save money. ReFED estimates a $103 million investment in a consumer food waste education campaign would lead to a financial gain of $6.08 billion.[53] A major UK consumer food waste campaign generated a 250-to-1 return on investment in terms of measurable food waste reduction.[54] EPA could, on its own or in partnership with other federal agencies or state and local governments, mount a National Consumer Awareness Campaign for Food Waste Reduction. This campaign could draw from the work of the Natural Resources Defense Council and the Ad Council, whose joint "Save the Food" campaign offers consumers the tools they need to reduce food waste.[55] In designing the campaign, EPA should aim to appeal to a range of values, including both helping the environment, and reducing wasted dollars on unused food, and reducing food waste disposal bills,[56] and should target both rural and urban populations.

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[51] *Food: Too Good to Waste Implementation Guide and Toolkit*, EPA (Oct. 29, 2020), https://www.epa.gov/sustainable-management-food/food-too-good-waste-implementation-guide-and-toolkit.
[52] *Consumer Education Campaigns*, ReFED, https://insights-engine.refed.com/solution-database/consumer-education-campaigns (last visited Feb. 22, 2021).
[53] *Home Composting*, REFED INSIGHTS ENGINE, https://insights-engine.refed.com/solution-database/home-composting (last visited Apr. 7, 2021).
[54] CRAIG HANSON & PETER MITCHELL, CHAMPIONS 12.3, THE BUSINESS CASE FOR REDUCING FOOD LOSS AND WASTE 1 (2017), https://champs123blog.files.wordpress.com/2017/03/report_-business-case-for-reducing-food-loss-and-waste.pdf.
[55] SAVE THE FOOD, https://savethefood.com/ (last visited Feb. 22, 2021).
[56] *Consumer Education Campaigns*, ReFED, https://insights-engine.refed.com/solution-database/consumer-education-campaigns (last visited Feb. 22, 2021).

EPA should work with outreach organizations to provide communities with the technical support they need to reduce food waste. EPA regularly provides funding to nonprofit and academic organizations that undertake capacity development in the form of community education and outreach. For example, EPA regularly offers grants to the Rural Community Assistance Partnership (RCAP), a national network of nonprofit organizations designed to help communities address issues such as water pollution and waste management by offering those communities technical assistance, training, and resources.[57] EPA also funds the National Environmental Training Center for Small Communities (NETCSC), a program that offers small communities training and referral services for wastewater and drinking water issues.[58] EPA should continue to support these organizations and others like them and commission them to provide communities with the information, technical assistance, and resources they need to manage, donate, or compost food waste. Ideally, communities would be able to customize the materials to fit their unique situations, building on EPA materials to regionalize them.

[57] RURAL CMTY. ASSISTANCE P'SHIP, FISCAL YEAR 2019 ANNUAL REPORT: EXPANDING IMPACT FOR RURAL QUALITY OF LIFE (2019), https://www.rcap.org/wp-content/uploads/2020/02/RCAP_AnnualReport-2.pdf.
[58] *Nat'l Env't Training Ctr. For Small Cmtys.*, W.V. UNIV. NAT'L ENV'T SERVS. CTR., https://www.nesc.wvu.edu/about-actat/national-environmental-training-center-for-small-communities (last visited Mar. 21, 2021).

D2. EPA should support food waste reduction, food recovery, and food waste education in schools, either on its own or in partnership with USDA or the U.S. Department of Education.

Schools offer a great leverage point for food waste reduction, as they are a place to not only reduce waste generated during school meals, but also to educate students so they will make better decisions in the future. EPA already provides some funding to schools through its Environmental Education grants program.[59] These grants, which total between $2 million and $3.5 million each year, support programs that "design, demonstrate, and/or disseminate environmental education practices, methods, or techniques."[60] Recently, EPA has awarded a number of grants to states, local governments, and schools hoping to reduce their food waste. For example, in 2020, the agency gave grant funding to the Florida Department of Agriculture & Consumer Services, Kansas State University, and the University of Rhode Island, each of which plans to use the money for food-waste reduction programs in their communities and local K-12 schools.[61] EPA should continue to offer this type of educational funding, but it can also do more to specifically target food waste.

EPA should offer grant funding or "challenge" funding to schools to implement food waste reduction and recovery programs, or to develop education and outreach programs to teach children about food waste. There are a number of proven mechanisms by which schools can reduce food waste. They can eliminate the use of trays, make lunch periods longer, schedule lunch after recess, and conduct taste tests to determine what healthy foods students are more likely to eat before adding new foods to the menu.[62] Student health and nutrition should remain a primary focus of school lunch and offering healthier options for children can be combined with efforts to reduce waste. Schools can also teach children to take responsibility for their food by establishing share tables for students to share unopened food for other students to take, and can donate any surplus food from the school food service program.[63] While most of these initiatives are simple, public schools are generally overburdened and have existing priorities that may get in the way of food waste reform, or are not sure what rules apply to their share tables or food donation programs and do not have the time to research the applicable rules. To incentivize schools to take food waste reduction seriously, EPA should provide schools that undertake and successfully complete these initiatives incentive funding. EPA could structure this program as a challenge, giving schools that proportionally reduce the most food waste more funding. By gamifying the process, EPA can make food reduction goals more fun and exciting for students and school staff.

To enable schools to measure how much food they waste, EPA could incentivize or assist schools with conducting school food waste audits. Food waste audits show schools how much food they waste, what types of food are wasted the most, and where specific reforms can make the most impact. Such audits can also engage students as active participants, giving them a learning opportunity at the same time. In cooperation with USDA and the University of Arkansas, EPA published a Guide to Conducting Student

[59] *Environmental Education (EE) Grants*, EPA (Oct. 19, 2020), https://www.epa.gov/education/grants.
[60] *Environmental Education (EE) Grants*, EPA (Oct. 19, 2020), https://www.epa.gov/education/grants.
[61] *Environmental Education Grant Descriptions*, EPA (Nov. 12, 2020), https://www.epa.gov/education/environmental-education-grant-descriptions.
[62] *See* EMILY BROAD LEIB ET AL., KEEPING FOOD OUT OF THE LANDFILL: POLICY IDEAS FOR STATES AND LOCALITIES 42–47 (2016), http://www.chlpi.org/wp-content/uploads/2013/12/Food-Waste-Toolkit_Oct-2016_smaller.pdf.
[63] *See* EMILY BROAD LEIB ET AL., KEEPING FOOD OUT OF THE LANDFILL: POLICY IDEAS FOR STATES AND LOCALITIES 42–47 (2016), http://www.chlpi.org/wp-content/uploads/2013/12/Food-Waste-Toolkit_Oct-2016_smaller.pdf.

Food Waste Audits in 2017,[64] but it does not offer funding to schools who decided to undertake an audit. Funding could make it easier for schools, and incentivize them to conduct these audits.

EPA should partner with corporate and nonprofit institutions to offer financial incentives to any schools that register with the EPA Food Recovery Challenge.[65] The Food Recovery Challenge is a program that encourages businesses and organizations, including schools, to set food waste reduction goals, execute reduction strategies, and report their results to EPA, which recognizes those organizations and businesses that perform well.[66] While it does offer technical support and recognition incentives, the Challenge unfortunately does not offer participants any monetary rewards or other financial incentives. EPA should partner with local business and nonprofits that are willing to "sponsor" schools who participate. Offering some amount of funding to schools that successfully participate in the program could encourage more schools to join in the effort to reduce food waste, and companies and nonprofits will earn positive publicity from their donations.

EPA should work with the U.S. Department of Education to create and promote curricular materials on food, agriculture, and how to reduce food waste. Educating students about where food comes from, and teaching them about the need to reduce food waste and how to do so can be an effective means to reduce waste. Not only will the students themselves change their own habits, but they can carry home important information about reducing food waste to their families. EPA could partner with the U.S. Department of Education to design a food waste curriculum, which the Department of Education could disseminate to state departments of education for use in local cafeterias and classrooms. EPA can also partner with state departments of agriculture and departments of education to distribute educational resources. EPA may wish to model this educational initiative on USDA's Agriculture in the Classroom, a national program that offers workshops, conferences, and educational resources for states and school systems that want to teach students about agriculture.[67] Each state has its own program within this larger organization; some states house their programs within their departments of agriculture, while others rely on universities and nonprofits.[68] EPA could similarly create a national educational program on food and the environment that offers resources to state affiliates.

[64] MELISSA TERRY, STEPHEN STURDIVANT & JIMMY NGUYEN, USDA, EPA & UNIV. ARK., GUIDE TO CONDUCTING STUDENT FOOD WASTE AUDITS: A RESOURCE FOR SCHOOLS (2017), https://www.epa.gov/sites/production/files/2017-12/documents/guide_to_conducting_student_food_waste_audit_-_nov_20_2017.pdf.
[65] *Learn About the Food Recovery Challenge (FRC)*, EPA (Jan. 28, 2021), https://www.epa.gov/sustainable-management-food/learn-about-food-recovery-challenge-frc.
[66] *Learn About the Food Recovery Challenge (FRC)*, EPA (Jan. 28, 2021), https://www.epa.gov/sustainable-management-food/learn-about-food-recovery-challenge-frc.
[67] *Agriculture in the Classroom (AITC) Program*, USDA NAT'L INST. OF FOOD & AGRIC., https://nifa.usda.gov/program/agriculture-classroom-aitc-program (last visited Apr. 10, 2021).
[68] *Affiliates: State/Territory Programs*, NAT'L AGRIC. IN THE CLASSROOM, https://www.agclassroom.org/affiliates/programs/ (last visited Apr. 10, 2021).

D3. EPA should provide education and guidance to states on state laws regarding feeding food scraps and surplus to animals and livestock.

Feeding food scraps and surplus to animals and livestock can be a safe, productive way to prevent food waste. By using scraps for feed, farmers can save money they otherwise would have spent on expensive commercial feed or garbage disposal costs.[69] In fact, farmers have fed food scraps to animals for centuries.[70] While the practice has been regulated in recent years due to safety concerns, some of the laws and regulations in place that govern scrap feeding are stricter than they need to be to maintain human and animal health and safety.

Both federal and state law regulate animal feed safety, but the state laws are inconsistent, and some state laws are unnecessarily strict. Federal laws that regulate animal feed include the Swine Health Protection Act,[71] the FDA's Ruminant Feed Ban Rule,[72] the Food Safety Modernization Act[73] (and particularly the Preventive Controls Rule for Animal Feed[74]), and FDA regulations regarding adulteration[75] and labeling.[76] Under federal law, farmers can generally feed food scraps to animals as long as the scraps are heat-treated (to 212 degrees for at least 30 minutes) if they contain meat or animal byproducts.[77] This rule serves as a regulatory floor, but states can impose stricter rules, and many do. For example, quite a few states prohibit feeding animal-derived food scraps to swine, and some also even forbid the feeding of vegetable waste to swine.[78] Certain states allow farmers to feed vegetable scraps to swine but, unlike the federal laws, require that the scraps be heat-treated.

EPA should provide guidance to states about which measures are necessary—and which are not—to keep animals safely fed. To do so, it may wish to work with USDA and FDA, which implement the federal laws concerning animal feed. These three agencies should work with their state counterparts to publish standardized, reasonable guidance regarding animal feed. EPA in particular can help to educate states about the benefit of using sensible laws on feeding food scraps to animals to help reduce overburdened landfills. In doing so, the agencies should encourage states to adopt rules that allow certain types of animal scrap feeding, but should also ensure that the federal regulatory floor remains high enough to prevent safety issues.

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[69] EMILY BROAD LEIB ET AL., LEFTOVERS FOR LIVESTOCK: A LEGAL GUIDE FOR USING FOOD SCRAPS AS ANIMAL FEED 2 (2016), http://www.chlpi.org/wp-content/uploads/2013/12/Leftovers-for-Livestock_A-Legal-Guide_August-2016.pdf.

[70] *Reduce Wasted Food by Feeding Animals*, EPA (Jan. 13, 2021), https://www.epa.gov/sustainable-management-food/reduce-wasted-food-feeding-animals#:~:text=Farmers%20have%20been%20doing%20this,them%20hauled%20to%20a%20landfill.

[71] Pub. L. No. 96-468, 94 Stat. 2229 (1980) (codified at 7 U.S.C. §§ 3801 to 3813).

[72] 21 C.F.R. § 589.2001 (2020).

[73] Pub L. No. 111-353, 124 Stat. 3885 (2011) (codified in scattered sections of the U.S. Code).

[74] 21 C.F.R. § 507 (2020).

[75] 21 C.F.R. § 121 (2020).

[76] 21 C.F.R. § 101 (2020).

[77] EMILY BROAD LEIB ET AL., LEFTOVERS FOR LIVESTOCK: A LEGAL GUIDE FOR USING FOOD SCRAPS AS ANIMAL FEED 8 (2016), http://www.chlpi.org/wp-content/uploads/2013/12/Leftovers-for-Livestock_A-Legal-Guide_August-2016.pdf.

[78] EMILY BROAD LEIB ET AL., LEFTOVERS FOR LIVESTOCK: A LEGAL GUIDE FOR USING FOOD SCRAPS AS ANIMAL FEED 8 (2016), http://www.chlpi.org/wp-content/uploads/2013/12/Leftovers-for-Livestock_A-Legal-Guide_August-2016.pdf.

D4. EPA should promote the development of state and local strategies to market and divert food waste by publishing and publicizing information about the relative costs of waste management strategies.

EPA should encourage states and localities to work with landfills to incorporate food waste reduction measures into their business plans. When states and municipalities develop waste management business plans, many of them do not consider the financial implications and short- and long-term costs of recycling certain materials versus creating programs to divert those same materials. Landfilling material is often expensive. According to a 2014 EPA report, it typically costs between $336,000 to $774,000 to construct one acre of landfill.[79] This figure does not even include the cost of installing gas collection systems or complying with RCRA financial assurance and monitoring requirements.

New York City illustrates how recycling may be cheaper than landfilling. In 2013, it cost the City $336 million to put residential waste in out-of-state landfills.[80] It would have been cheaper to recycle certain components of the waste stream; for instance, paper cost $86 per ton to landfill, but only $10 per ton to recycle.[81] In recognition of this fact, the City piloted a program to recycle organic waste the following year.[82] EPA should provide states and municipalities with resources that tell stories like New York's and highlight how waste recycling and diversion programs could save communities money and lower tax burdens (though prevailing market conditions vary across communities as to whether food waste diversion is more or less cost effective as compared to landfilling). EPA should be sure to include data about the costs associated with landfill construction and expansion, regulatory monitoring and compliance, and waste transportation. Armed with this information, states and municipalities could make informed decisions about waste management that harmonize environmental and financial concerns.

EPA should provide state and local governments with model food waste diversion programs to use as examples in creating their own strategies to reduce organic landfill waste. EPA guidance can provide states and localities with direction in developing market initiatives and collaborations. This guidance should encourage the development of food waste reduction programs that involve semi-municipal enterprises, NGOs, and private businesses. Examples of successful market exchange programs include: 1) the Exchange Zone of El Cerrito, California, through which community members can exchange reusable items with each other,[83] 2) The Recycling Partnership, formerly known as the Curbside Value Partnership, which works with communities to improve curbside recycling,[84] and 3) Orcas Island's

[79] EPA, MUNICIPAL SOLID WASTE LANDFILLS: ECONOMIC IMPACT ANALYSIS FOR THE PROPOSED NEW SUBPART TO THE NEW SOURCE PERFORMANCE STANDARDS 2-16 (2014), https://www.epa.gov/sites/production/files/2020-07/documents/solid-waste_eia_nsps_proposal_07-2014.pdf.
[80] Sarah Crean, *Recycling Food Scraps Could Transform How NYC Deals with Its Trash*, GOTHAM GAZETTE (Sept. 16, 2013), https://www.gothamgazette.com/environment/4582-recycling-food-scraps-could-transform-how-nyc-deals-with-its-trash.
[81] Sarah Crean, *Recycling Food Scraps Could Transform How NYC Deals with Its Trash*, GOTHAM GAZETTE (Sept. 16, 2013), https://www.gothamgazette.com/environment/4582-recycling-food-scraps-could-transform-how-nyc-deals-with-its-trash.
[82] Sarah Crean, *Recycling Food Scraps Could Transform How NYC Deals with Its Trash*, GOTHAM GAZETTE (Sept. 16, 2013), https://www.gothamgazette.com/environment/4582-recycling-food-scraps-could-transform-how-nyc-deals-with-its-trash.
[83] *The Exchange Zone*, THE CITY OF EL CERRITO, https://www.el-cerrito.org/956/The-Exchange-Zone (last visited Mar. 13, 2021).
[84] *Recycling Coordinators*, THE RECYCLING P'SHIP, https://recyclingpartnership.org/for-communities/ (last visited Mar. 13, 2021).

community reuse center, The Exchange.[85] These programs can be adapted for the food waste context. For example, through Barcelona's Oilpot program, city residents are provided with reusable containers to fill with used cooking oil, which they can then drop off at green points throughout the city where the oil is collected and processed into biodiesel.[86] There are many ideas for the recovery and exchange of recovered materials than range from formal business to exchange sites associates with recycling initiatives. EPA should share these ideas widely to inspire widespread innovation and adoption.

EPA should develop a food loss and waste toolkit for local governments seeking to implement a food waste diversion and management strategy. A food waste toolkit for local governments could include guidance on how to research and report on food loss and waste. EPA should add this toolkit to the existing guidance for recycling and yard waste, found in the Tools for Preventing and Diverting Wasted Food portion of EPA's website,[87] which helps local governments and community leaders learn how to make recycling and diversion work in their areas. EPA could collaborate with the *Food Matters* program, a program implemented by the Natural Resources Defense Council that support cities in measuring and reducing food waste, to develop and disseminate such guidance.[88]

[85] *Who We Are*, THE EXCHANGE/ORCAS RECYCLING SERVS., http://www.exchangeorcas.org/about/ (last visited Mar. 13, 2021).
[86] *Olipot: In Barcelona, Cooking Oil is Recycled*, LIVINGCIRCULAR (Sept. 15, 2016), https://www.livingcircular.veolia.com/en/eco-citizen/olipot-barcelona-cooking-oil-recycled.
[87] *Tools for Preventing and Diverting Wasted Food*, EPA (Nov. 6, 2020), https://www.epa.gov/sustainable-management-food/tools-preventing-and-diverting-wasted-food.
[88] *Food Matters*, NAT. RES. DEF. COUNCIL, https://www.nrdc.org/food-matters (last visited Mar. 19, 2021).

D5. EPA should provide model language and assistance to states in best practices for developing permits for composting and anaerobic digestion.

EPA should provide model language and training and technical assistance to states and localities to create proper permits for food recycling. Farms have the potential to serve as viable waste-management resources for communities who want to compost uneaten food or process this waste using anaerobic digesters. However, many farms struggle to obtain the requisite federal, state, and local permits for composting and anaerobic digestion, especially for on-farm facilities. Not only do permitting requirements vary by state and locality, but applicants must sometimes work with various agencies at each level of government to obtain the necessary permits.[89] To simplify this process, EPA should encourage states to adopt general permits, which combine the requirements enforced by various state and local agencies into one permit.[90] Some states, including Massachusetts, Nebraska, California, and Pennsylvania, already employ a general permitting system.[91] To encourage other states to adopt general permitting, EPA should provide states with model permit language.

[89] ALEXANDER WEISS ET AL., CAFE LAW & POLICY LAB, LET'S TALK ABOUT BIOGAS…EVEN IF WE THINK IT STINKS 11 (2020), https://law.yale.edu/sites/default/files/area/center/leap/document/lets_talk_about_biogas_-_cafe_lab_-_spring_2020.pdf.
[90] ALEXANDER WEISS ET AL., CAFE LAW & POLICY LAB, LET'S TALK ABOUT BIOGAS…EVEN IF WE THINK IT STINKS 11 (2020), https://law.yale.edu/sites/default/files/area/center/leap/document/lets_talk_about_biogas_-_cafe_lab_-_spring_2020.pdf.
[91] ALEXANDER WEISS ET AL., CAFE LAW & POLICY LAB, LET'S TALK ABOUT BIOGAS…EVEN IF WE THINK IT STINKS 11 (2020), https://law.yale.edu/sites/default/files/area/center/leap/document/lets_talk_about_biogas_-_cafe_lab_-_spring_2020.pdf.

D6. EPA should conduct or support research on the opportunities and tensions related to the nexus between food waste and food packaging, to provide better insight into the best practices to reduce greenhouse gas emissions.

As discussed above, EPA should encourage farmers and food businesses to donate food waste whenever possible. However, as farmers and food businesses know, donating food often requires using packaging to store and deliver the recovered food. A lot of this packaging is single-use plastic, and the vast majority of recyclable packaging is not recycled.[92] So, while donating food has immense social and environmental benefits, it can generate large amounts of waste—especially plastic waste—that causes environmental damage and can negatively impact human health.[93]

To combat this problem, EPA should encourage food donors and food recovery organizations to utilize reusable and/or biodegradable packaging when donating food by publishing a donation best practices guide. This guide should also emphasize that farms and food businesses who do not yet have access to reusable or compostable packaging should at least use recyclable packaging and should make sure that any packaging is properly recycled.

Furthermore, EPA should support research that investigates how environmentally friendly food packaging can be produced in a way that is cost effective, and to support develop of de-packaging technology. For example, EPA should facilitate research to develop more cost-effective compostable, digestible, and/or bio-based packaging that can be sustainably made, distributed, and disposed of on a large scale. Alternatively or in addition, EPA could invest in research to develop more technology to support de-packaging so that food can be effectively removed from packaging before going to compost or digestion.

[92] Martin C. Heller, Michael H. Mazor & Gregory A. Keoleian, *Plastics in the US: Toward a Material Flow Characterization of Production, Markets and End of Life*, 15 ENV'T RSCH. LETTERS 1, 4 (2020) (Only around 8% of plastics disposed of in the United States are recycled.).
[93] THE PEW CHARITABLE TRS. & SYSTEMIQ, BREAKING THE PLASTIC WAVE 17 (2020), https://www.pewtrusts.org/-/media/assets/2020/07/breakingtheplasticwave_report.pdf.

D7. EPA should create guidance and offer technical assistance for state reporting of food waste.

EPA relies on large amounts of data to implement its mission of ensuring a clean environment. Unfortunately, EPA lacks comprehensive data on the amount of food waste that states and municipalities generate. Instead, any reporting is voluntary, and the data may not be reported in standard ways. As a result, when generating national estimates of food waste, the agency aggregates many studies and data sources to arrive at a national food waste estimate,[94] but cannot specifically identify how much food waste is generated and where that food waste comes from.[95] Although EPA does not require states to report on the annual amount of food waste generated within their borders, many states do study and report on the composition of their municipal solid waste.[96] These studies, while informative, are not standardized; as such, it is difficult for EPA to compare them and analyze policy implications.

EPA should establish reporting guidance for those states that do report on food waste. Such guidance, which EPA should promulgate in addition to taking the measures laid out in Recommendation A3, would explain the importance of collecting food waste data and describe how such data should be collected and reported. This guidance should also explain how to separate food packaging from food waste and clarify to states that food packaging should not be included in estimates of food waste. EPA should also offer technical assistance to states who could use help implementing these guidelines. In establishing a standard set of procedures for states to use in data collection and reporting, EPA would hopefully encourage more states to report on food waste and receive more standardized data from those states that do.

[94] For EPA's most recent estimates, see EPA, EPA 530-F-20-009, ADVANCING SUSTAINABLE MATERIALS MANAGEMENT: 2018 FACT SHEET (2020), https://www.epa.gov/sites/production/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf.
[95] For details on how EPA calculates its food waste estimates, see EPA, WASTED FOOD MEASUREMENT METHODOLOGY SCOPING MEMO (2020), https://www.epa.gov/sites/production/files/2020-06/documents/food_measurement_methodology_scoping_memo-6-18-20.pdf.
[96] *See Facts and Figures About Materials, Waste and Recycling*, EPA (Jan. 26, 2021), https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/advancing-sustainable-materials-management-0#U.S.StateandLocal.

D8. EPA should support research about food waste and ways to reduce it.

More research is necessary for the country to understand how best to reduce food waste and its environmental impact.

EPA should fund and otherwise support research in the following areas:

- Sustainable landfill treatment methods;
- Managerial tools to improve landfill management;
- Food waste marketing; and
- Tensions between food waste reduction, increased packaging, and population nutrition goals.